The United States MILLER

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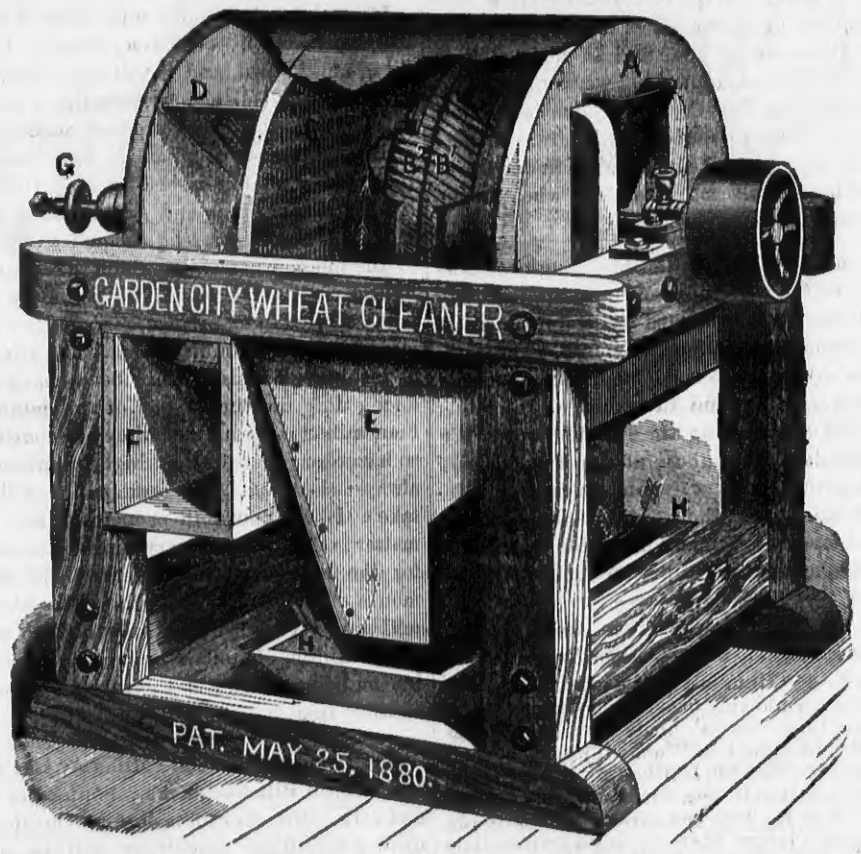
The Garden City Wheat Brush.

To state that the wheat before being ground should be well cleaned is so trite and axiomatic that it is impossible to enlarge thereon. However much millers may differ in theory and practice on other points of their trade, in this they are substantially in accord. But while opinions may agree, the practical carrying out of these opinions is a matter of some considerable difficulty, owing to the recognized defects of the machines which the millers have to use. To state concisely the question under discussion, there are grain cleaning machines, and grain cleaning machines, some fairly good and some which are used simply for want of something better, and which one to use is a vexed problem. Often the miller's reason for preferring one grain cleaning machine to another is very like to that of the old critic who preferred one bad book to another because, while the one was rhyme the other was neither rhyme nor reason. It is within the observation of every miller that there are wheat scouring machines which do not scour, and brush machines which do not brush, and that no one machine, however well it may be made, does its work so well as to leave nothing further to be desired. Wheat cleaning machines have been used for over half a century, and while they have of course been materially modified and improved, there has for some time past been a decided feeling among millers that there was still room for improvement.

There are two separate and distinct systems of wheat cleaning in use in this country, scouring and brushing, which it has been attempted of late to combine in one machine, with however but partial success. The scouring machine is designed to remove the furz and outer impurities by a scouring or partial decortication of the berry. The defects of this process are generally admitted, and the breaking up of the outer friable layer of the bran is conceded to result in lowering the color and purity of the flour, the bran being so weakened as to break up during the subsequent reduction into flour. The combined brush and scouring machine is open to the objection that it does neither scouring nor brushing very thoroughly, and that while the outer coating of the bran is abraded and the dust loosened up, the brushing action does not remove the impurities.

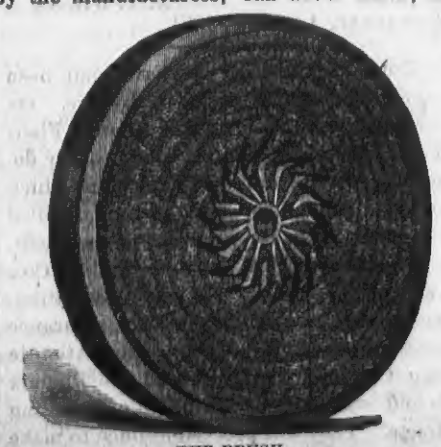
The scouring system ante-dates the modern plan of brushing, the gentler action of which is now conceded to be more in accordance with modern ideas of milling. American millers having become convinced that scouring machines were radically wrong, various brush machines have been invented to take their place. These, while an improvement on the old machines, have always been open to criticism on account of their failure to thoroughly accomplish the purpose for which they were designed. It is not making too strong an assertion to say that brush machines, as hitherto constructed, have not brushed the wheat. The fault has been, not in the use of brushes, but in the way they were applied. A moment's thought will show any miller or mechanic that to place a cylindrical or conical brush within an outer casing or shell between which and the brush the grain to be cleaned must pass, is very far from being the best arrangement that could be devised. The wheat is alternately beaten back and forth between brush and casing, and eventually escapes but half brushed, and very often not more than half scoured. It may be said that this cannot happen if brush and casing are held close enough together, but here there arises a serious difficulty, owing to the manner in which the brushes have heretofore been constructed, as when held too closely to the casing, the kernels of the grain are more or less completely buried in the brush and the exposed portions are worn or scoured away, the result being the ultimate discoloration of the flour. Another objection that has often been raised against both scouring and brush machines, is that the dust and impurities which have been loosened from the grain are imperfectly removed, owing to the lack of proper ventilation or air currents. It does not require any extended argument to prove that the impurities which are left in the wheat after it has passed through the cleaning machinery are a direct source of loss, inasmuch as they not only discolor the flour, but, by clogging up the reels and purifier cloths, render the subsequent separations more difficult. With the defects of the machines in use at present so manifest, it is not a matter of surprise that a machine has been at last invented which not only does not scour the wheat but which does brush it thoroughly, and which is constructed upon principles which even the most prejudiced must allow to be both scientific and correct, and which are scientific because they are correct. The only matter of wonderment is that the ever fertile minds of American inventors did not long ago discover and apply these principles.



The accompanying illustrations show a new wheat cleaning machine, invented by Mr. Louis Gathmann, the inventor of the well-known "Garden City" purifier. Mr. Gathmann's record as an eventor is ample assurance that this new machine is not the outcome of some happy thought quickly formed into shape. On the contrary, it is the result of a long series of experiments and much careful study. It is not a scouring machine in any sense of the word, but it is a brush machine—one which will brush the wheat thoroughly and which is entirely free from the many serious objections which have been raised against brush machines as hitherto made. The brushes act as brushes, and cannot be made to work in any other way, and are not part of a scouring machine. A brief description of the machine will show its marked departure from former methods and the many important features embodied in its construction.

Figure 1 gives a good idea of the outward appearance of this machine, which is called the GARDEN CITY WHEAT CLEANER, and also a partial interior view, showing its construction. It resembles a vertical mill, the working parts consisting of a fan and a pair of flat circular brushes, one stationary and the other revolving, the same as the millstones are arranged in an ordinary portable mill. The shape of each brush is accurately shown in Fig. 2. Aside from the flat circular shape, the marked peculiarity of the brush is the manner in which the bristles are placed, they being set at an angle of about 30 degrees with the plane of the brush, their relative position being shown at B^1 and B^2, Figure 1. It is this peculiar arrangement of brushes, which is claimed to be one of the most valuable features of the machine. The bristles being inclined, it is manifestly impossible that any wheat should be forced into or lodged in the brushes; and passing each other as they do the brushes cannot be interlocked or clogged, no matter how close they may be held together. This enables the miller to adjust the brushes as close as may be necessary to thoroughly brush the grain and not allow a single kernel to escape uncleaned. The operation of the machine is as follows:

The wheat is spouted into the hopper A, Fig. 1, from whence it is fed in between the faces of the two brushes B^1 and B^2, the former being stationary, and by centrifugal force is carried outward and discharged into the chamber E, in which the brushes are placed. In its passage it is thoroughly brushed, the completeness of the operation being governed by the distance between the brushes, which is easily regulated by the miller in charge by means of the lighter screw and hand wheel G. The fan shown at D is on the same shaft as the revolving brush, and between it and the chamber E is a screen C, the area of which is five times as large as the opening into the fan. No matter how strong the suction may be the screen intercepts the wheat and prevents any of it from being thrown out and wasted. The suction by the fan can thus be made so strong as to carry away every particle of the dust and furz which is loosened by the brushes. The shape of the chamber E is such that it is impossible for the dust to gather in masses and fall into the cleaned wheat by reason of its accumulated weight overcoming the power of the fan. This, it is claimed by by the manufacturers, can never occur, and that a careful watching of the machine will soon convince any miller that it is impossible.



THE BRUSH.

The manufacturers claim for this machine that the peculiar form and arrangement of the brushes admit of any desired adjustment, which is easily effected while the machinery is running, and by this adjustment the machine can be readily adapted to the condition of the wheat, brushing as much or as little as may be necessary. It is also claimed that it will never scratch or break the wheat, nor can any be wasted, no matter how strong the suction, as the screen prevents any wheat getting into the fan. The machine is not an untried invention, having been very thoroughly tested in the factory before any were allowed to go out, and since, by use in a number of mills where they are giving entire satisfaction.

The Garden City Mill Furnishing Company have already made and shipped over 500 of these brush machines, and are now about six weeks behind their orders, and are working night and day to catch up if possible. This machine will be exhibited in the new Milwaukee Industrial Exhibition building, at the exhibition in this city commencing September 6th, which will give the millers of the Northwest an excellent opportunity for examining it. The machine will also be exhibited in the milling department of the Pittsburg Exhibition in September.

The Garden City Wheat Cleaner is made by the Garden City Mill Furnishing Company of Chicago, Ill., and will be sent on trial to responsible millers. It is substantially and compactly built, and three sizes are made, so as to adapt it to the different sized mills. It is compact in form, requires comparatively little space and power, and is in every respect what millers have long desired, a perfect wheat-cleaning machine. Full particulars as to price, capacity, etc., may be obtained by addressing the manufacturers as above.

Oscar Oexle, C. E.

A SAD MISFORTUNE TO AN ABLE MAN.

A great many millers in the United States will remember the blind milling engineer, Mr. Oscar Oexle of Augsburg, Germany, who visited this country twice, once in 1876 and subsequently in 1878, acting at that time as agent for Fr. Wegmann's porcelain roller mills. He made friends wherever he went, was gentlemanly in behavior, highly educated and very entertaining. He spoke the English language fluently and was besides this master of the German, French, and Italian languages. During his first visit he closed a contract with Messrs. E. P. Allis & Co., of Milwaukee, whereby they became sole agents and manufacturers of these rolls in this couutry. Soon after his return to Germany he married his affianced, a lady of great refinement. He made her acquaintance the year before the terrible explosion took place in Messrs. Muir's Tradeston Mills in Glasgow, Scotland, in 1872, by which accident he lost his eyesight. The mill was wrecked just after he had completed it.

The second time he visited this country, his wife accompanied him. She was his only delight. He would sit for hours and listen to her masterly performances on the piano and to her able voice singing the most difficult operatic gems and simple airs with equal elegance. After returning to Germany the second time he associated with him a talented young milling engineer and did business under the firm name of Oexle & Co., at Augsburg. Mr. Oexle and W. D. Gray *built the first all-roller mill in this country*, the experimental mill for ex-Gov. C. C. Washburn, at Minneapolis.

He was a great admirer of America and longed to come over again. Now we hear the sad news from across the ocean that he has become very ill—his spirits have become clouded, and the unfortunate man has become unable to bear his affliction. He was body and soul a mechanic, and he could no longer *see* machinery running. He could *feel* the mechanism when idle, but this could not suffice. He has become insane and has been taken to the asylum at Irrsee, away from his loving wife and two children. All of his many friends will join us in our heart-felt wishes for his recovery and that he will try to make his life as happy as possible, by not fretting too much over a misfortune which "cannot be cured but must be endured."

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ANNOUNCEMENT:

☞ WM. DUNHAM, *Editor of "The Miller," 69 Mark Lane, and* HENRY F. GILLIG & Co., *449 Strand, London, England, are authorized to receive subscriptions for the* UNITED STATES MILLER.

MILWAUKEE, SEPTEMBER, 1881.

We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

MILLERS' DIRECTORY.

All mill-furnishers, flour brokers or other parties desiring to reach the flour mill owners and millwrights of the United States and Canada, should have a copy of the above named work. It contains about 15,600 names with Post-office addresses, and in many cases (notably in Wisconsin and Minnesota) gives the number of runs of stone, sets of rollers, and kind of power used, or the capacity in barrels. A limited number of copies only have been printed. Upwards of 200 of the leading mill-furnishing houses and flour brokers in this country and several in Europe have already secured copies. Send in your orders at once. Price Five Dollars, on receipt of which Directory will be forwarded post-paid by mail. Address,

UNITED STATES MILLER,
MILWAUKEE, WIS.

☞ The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

A Word to Advertisers.

The advertising columns of the UNITED STATES MILLER are of great value to all desiring to reach the milling and grain trade. It is sent to all millers in the United States and Canada at intervals (whether subscribers or not), whose names and addresses we have been able to obtain. It is on file in the offices of U. S. Consuls in all parts of the world, and also in the principal Chambers of Commerce in America and Europe. Our foreign subscription list is constantly increasing, as also we are glad to note our foreign advertising patronage. We have received many letters of high approval of the UNITED STATES MILLER from subscribers and advertisers. Parties desiring further particulars in regard to amount of circulation, rates, etc., will be promptly supplied with information by addressing us.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. *You will thereby oblige not only this paper, but the advertisers.*

D. G. TEPPER, Esq., is no longer connected with the *Corn Trade Journal and Miller's Gazette*, of London, England. J. E. Beerbohm, Esq., is the publisher of that paper, which is highly prized by the trade in Great Britain and the United States.

WE are pained to announce the death of William Trow, Jr., of the milling firm of W. Trow & Co. He died Aug. 9th at Madison, Ind., of pulmonary consumption. He leaves a host of warm friends to mourn his loss and sympathize with his bereaved family.

CAWKER should go to New York. Just now there is elegant shark-fishing off the North river docks in that city. Although not of the "patent" kind they "bite" lively and furnish good sport.—*Northwestern Miller.*

Hoppin, it's no use to go *anywhere* to fish for patent sharks now. The M. N. A. has already caught most of 'em, and what they hav'nt got yet they have got set lines for.

THE Geo. T. Smith Purifier Company have brought action against Messrs. Hayden & Reynolds, millers of Jackson, Mich., for alleged infringements of their patents in using the Silver Creek purifiers, manufactured in Silver Creek, N. Y., by Huntley, Holcombe & Heine.

MESSRS. Simpson & Gault, mill-builders and mill-furnishers at Cincinnati, O., will please accept our thanks for a copy of their handsome new catalogue of Flour Mill Machinery for 1881 and 1882. Mill-owners can obtain a copy by addressing their request to them as above noted.

A CORN DEGERMINATOR.—Messrs. Muir & Sons, of the Tradeston Mills, Glasgow, Scotland, have taken out a patent for process and machinery for extracting the germ from maize or corn. It vastly improves the grain for distilling purposes, and the process is being rapidly introduced into European countries. The germ extracted is a valuable article of food for cattle and horses, even after a percentage of the oil is extracted.

KRUPP'S Iron Works at Essen, Germany, now employ 13,000 laborers. The establishment is crowded beyond its utmost capacity with orders for steel cannon from all nations. It looks a little strange in these peaceful times to see so many nations preparing for possible war, but perhaps it is a good thing after all. Where every one is prepared, the anxiety to "let loose the dogs of war" will not be so great as it might otherwise be.

THE Eureka Manufacturing Co., of Rock Falls, Ill., is in a very prosperous condition. In a letter received from them recently they say: "We are obliged to run a double force of men on Brush Machines to keep anywhere near filling orders, and find it impossible to fill orders as promptly as we would like to. The Becker & Galt Combined Brush & Smutter never was as popular as it is now. Millers are finding out that the solid cylinder brush is the best in all cases to clean wheat in the best manner."

GEORGE G. SMITH, Milling Engineer, formerly of the well-known firm of Smith Bros., in Milwaukee, has opened an establishment at 115 Mission street, San Francisco, California, and is now ready to make plans and contracts for mill-building and furnishing of all kinds in all the territory on the Pacific Slope. We congratulate the millers of the Pacific Coast on securing such valuable services as Mr. Smith can render them, and we know it will not be long before many fine mills will rise in that magnificent wheat-producing country.

WE clip the following item from the San Francisco *Mining and Scientific Press:*

A year ago Humboldt Lake was so dry that horsemen could ride over its bottom without getting their horses' hoofs muddy. It was then demonstrated, as it was supposed, beyond all question, that the lake had no subterranean outlet, and that it was dried up by evaporation. Now the lake has spread out to its old size, and is larger than at any previous time in six years. Its waves beat against the railroad embankment at Brown's station, and its waters extend across the valley to the hills on the eastern side.

The above item proves the truth of the old Englishman's assertion, "you can't tell anything about this blarsted country."

A Note from N. T. Barnes, of the Throop Grain Cleaner Co.

Editor United States Miller:

DEAR SIR—My attention has been called to an article in your last number over the name of Holmophilos, relative to Centrifugal Flour Dressing Machines. Permit me to call millers' attention to the fact that the Throop and Crabtree Centrifugal *is not a German* machine and has none of the disadvantages spoken of in the Holmophilos article, as a great number of users in this country can testify. Very truly yours. N. T. BARNES.

MILWAUKEE, August 8, 1881.

ST. LOUIS milling interests have again been damaged, temporarily at least, by fire. On the evening of August 12th the Atlantic Flour Mill was struck by lightning and totally destroyed by the fire and dust explosions which followed. Four men were instantly killed and six others badly injured. Geo. Bain, Esq., President of the Atlantic Milling Co., and also of the Millers' National Association, estimates the loss at $140,000. The insurance amounts to about $120,000. The Atlantic Milling Co. immediately rented the Phœnix Mills and will be able to fill all outstanding contracts. They will proceed at once to make plans for and build a new mill 274 feet by 165 feet, of the most approved modern pattern.

The Inflammability of Flour Mills.

In these modern days of milling, where so much machinery is used together with no end of spouts, elevator legs, etc., running parallel with each other as well as diagonally like so many pieces of kindling wood, it is no wonder that when a fire gets anything of a start that the mill is surely doomed to total destruction. Every month we are called upon to chronicle the destruction of at least a dozen flouring mills in the different parts of this country alone. It does not appear that any great effort has been made as yet to prevent fires, but many mills have gone to great expense to provide means for putting them out, and experience has shown that in nine cases out of ten such appliances have proved of little value when the emergency for which they were provided arrived. It seems, therefore, that the greatest security against fire lies in taking steps to prevent them. It is well known that scenery in theatres was formerly very liable to burn. It was constructed of light frame-work, canvas and oil paint. It has been demonstrated in the case of scenery that it can be made comparatively secure from destruction by fire by the application of certain chemical materials in the shape of a varnish. Not long since we read in an Eastern paper of an experiment, where a piece of scenery thus protected was submitted to the flame of a gas jet for 15 minutes and the result was a simple charring of the surface. The chemical solution, we are informed, is inexpensive and can be purchased of any druggist. Why, in view of this, would it not be well to have every machine, elevator leg, conveyor box, and, in short, everything in a mill liable to burn readily, coated inside and out with an anti-fire varnish?

In regard to lights in a mill where it can be had, electricity is, of course, superior to anything now known, and it will undoubtedly be introduced in all the larger mills at an early date. In England they are now making what is called a light-giving paint. This paint has the peculiar quality of being able to absorb light in the day-time and give it out at night. It is said to give out a light equal to the light of the moon when full. Such a coating of light-giving paint would undoubtedly be of much service in many places in a mill or other manufacturing establishment. The attention of insurance companies has been engaged for a long time on the subject of the liability of flour mills to burn, and they are considered so hazardous a risk that high premiums are always asked, and some companies will not take a risk on flour-mill property at all. This matter is deserving of very serious attention for the losses are very great. During the month of August just past the losses of flour mill property by fire have amounted to nearly half a million of dollars in money and several human beings have lost their lives on account of these fires.

THE Pennsylvania State Millers' Association will meet in Pittsburgh, Pa., September 13th and 14th. On that occasion a considerable display of milling machinery will be made. Among the exhibitors of flour milling machinery and supplies are the following: A. W. Haag & Co., Fleetwood, Berks Co., Pa.; Star Wheat Heater Co., Ligonier, Ind.; John A. Hafner, Pittsburgh, Pa.; O. J. Bollinger, York, Pa.; Howes, Babcock & Ewell, Silver Creek, N. Y.; M. R. Wilkins & Co., Newark, Ohio; Simpson & Gault, Cincinnati, Ohio; Edw. P. Allis & Co., Milwaukee, Wis.; Wolf & Haymaker, East Hempfield, Pa.; C. S. Hoover, Lancaster, Pa.; Cockle Separator Manufacturing Co., Milwaukee, Wis.; Garden City Mill Furnishing Co., Chicago, Ill.; The Keller Purifier Co., Lima, Ohio; Richard Rae & Co., Wellsburg, W. V.; S. Morgan Smith, York, Pa.; A. N. Wolf, Allentown, Pa.; Wheat Meal Purifier Co., Minneapolis, Minn.; W. B. Scaife & Sons, Pittsburgh, Pa.; S. Deesau, New York City, N. Y.; Barber, Keiser & Co., Allentown, Pa.; W. H. Allen, New York City. Arkell & Smith, Canajoharie, N. Y.; Craig, Ridgeway & Son, Coatesville, Pa.; Kreider, Campbell & Co., Philadelphia; Harrisburg Flour Sack Manufactory, Harrisburg, Pa.; Electric Purifier Co., 17 Moore street, New York City; Brewster Bros. & Co. Unadilla, N. Y.; Benjamin D. Sanders, Wellsburg, W. V.; W. J. Martin, Catawissa, Pa.; W. S. Varner, Alexandria, Pa.; Reed & Sill, Trenton, Mich.; Burkholder & Durant, Canterbury, Ohio; H. J. Deal, Bucyrus, Ohio. B. F. Isenberg, Esq., of Huntingdon, Pa., Secretary of the State Association, writes us that he is greatly encouraged by the present indications and expects a fine display and a large attendance of millers.

SUBSCRIBE for the U. S. MILLER.

A Milwaukee Industry.

Messrs. Voechting, Shape & Co., of Milwaukee, are the proprietors of the largest Beer Bottling establishment in the world. They bottle Schlitz's Celebrated Milwaukee Beer exclusively. Their immense establishment on the corner of Second and Galena streets has lately been enlarged so that it now covers 65 feet in width by 300 feet in length. It has a basement 14 feet high and two stories above it of the size stated above. The railroad track runs into the building, so that the beer can be loaded directly into cars without hauling to depots. The establishment is supplied with the best machinery known for the purpose. Mr. Voechting, a member of the firm, is the inventor of several valuable machines. During the past year they have bottled and shipped millions of bottles of the favorite Milwaukee beverage, which has a world-wide reputation. The firm are also very extensive importers and dealers in bottles, corks, tin-foil, wire, and all kinds of machinery used in the bottling business. Their office arrangements are complete and perfect in every detail, being supplied with telegraph and telephone facilities. The firm express themselves highly gratified with their present trade, which is continually increasing, and their hosts of friends will be pleased to note the growth of this industry.

The Smith Middlings Purifier Co.

The Board of Directors of the "George T. Smith Middlings Purifier Company" held a meeting in this city this morning. The decease of Allen Bennett, who, since the organization of the company had held the offices of Secretary and Treasurer, created a vacancy in those offices.

The Board this morning unanimously elected Mr. Milford Harmon Secretary and Treasurer, to fill the vacancy caused by Mr. Bennett's death.

The qualifications of Mr. Harmon for this responsible position are well known. He has been closely identified with the company since its organization as mechanical superintendent and business correspondent, and his long experience and intimate familiarity with all the details of the business assures his success and that of the company, in the position of Secretary and Treasurer.

Mr. W. D. Thompson remains, as he has been from the first, President of the company, but will hereafter take a more active part in the management of its affairs.

Mr. C. R. Knickerbocker, who has been since the formation of the company its general manager, will continue in that position, giving his entire time to the supervision and management of its affairs.

The city and public are to be congratulated that the affairs of this large and successful company are in the hands of a Board of Directors and officers so responsible and efficient that even so great a misfortune as the death of Mr. Bennett does not occasion delay or complication in its business or management.

The company are now manufacturing more purifiers than ever before, and will constantly increase their facilities to meet the ever growing demands for their machines now coming from all parts of the world.—*Citizen*, Aug. 22, Jackson, Mich.

Case's "Little Giant" Reducer.

In a letter recently received from the Case Manufacturing Co., of Columbus, Ohio, they speak of their latest invention as follows:

A want has long been felt for a cheap Gradual Reduction Machine, which will come within the reach of small mills. To meet this want, we commenced a series of experiments, several months ago, which has resulted in the perfection of a machine for this purpose, which, we believe, has no equal.

1st. It makes a more perfect first break than any roll, or system of reduction, now in use. Not one berry in a hundred, but what is split straight through the seam, and but a trifling amount of middlings is made.

2d. The other breaks are superior to those of any other system now before the milling public.

3d. It requires but a small amount of power—a two-inch belt on the first, second and third breaks, will drive the machine for forty bushels per hour.

4th. A steel shoe can be detached in a moment, and one of a different dress applied, thus enabling the miller to use a corrugated shoe, to correspond with the kind of wheat being reduced.

5th. It only weighs 220 lbs., and can be set in any place in the mill, where power can be had, to test it. Its cost is less than one-third that of rolls; and it is more durable and less liable to get out of order.

We will send these Reduction Machines on trial, and if they do not prove superior to the rolls, or any other means of reduction, on the first, second and third breaks, they may be returned, at our expense.

We will give a description of this machine with illustrations soon, probably in our October number.

The Globe Middlings Purifier.

An invention was patented Feb. 1st, 1881, by Messrs Weber and Rector, of Laporte, Ind., both practical millers of long experience), which it is claimed is of more than ordinary importance to mill owners and operators, and we understand it is being largely manufactured by the Globe Manufacturing Company, of Benton Harbor, Michigan.

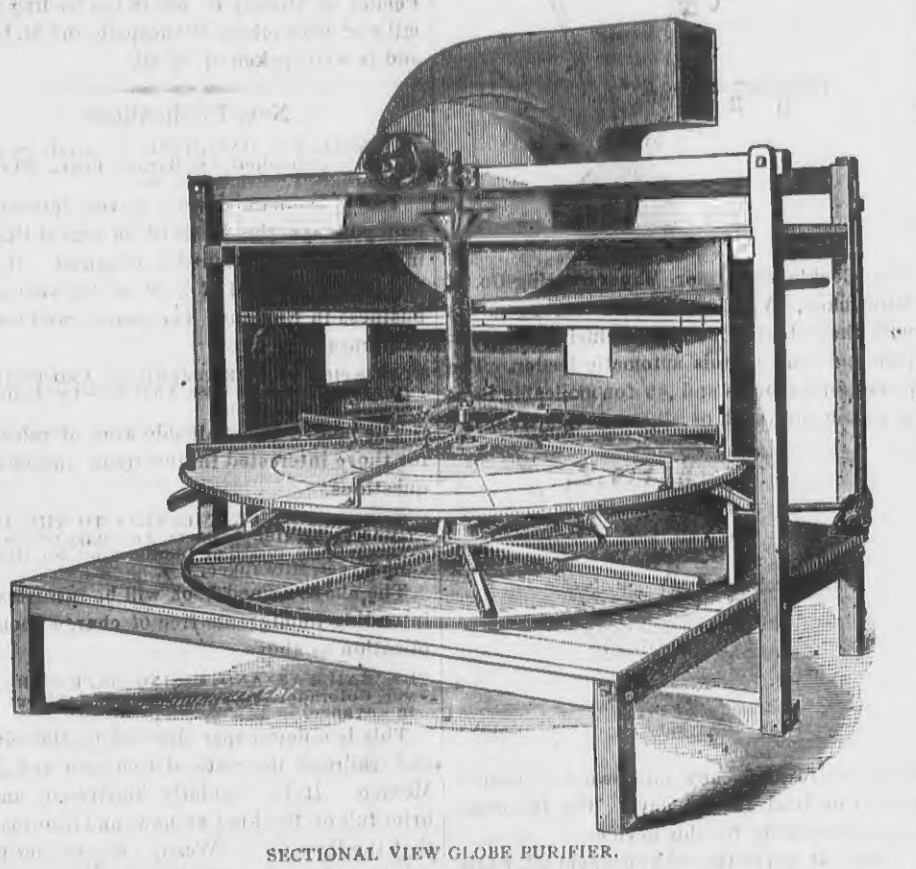
We refer to the Globe middlings purifier, lately introduced to the public through the advertising columns of this journal. We are informed that the invention gave so much promise of usefulness that a financially strong company has been organized to manufacture it; and though less than two months old the company, we are assured, are meeting with unexpected early success, receiving not only many orders, but the strongest testimonials, voluntarily given by parties already using the purifier.

Anxious to give our readers every information that may possibly prove advantageous, we have secured from the manufacturers a full description of this new purifier and a cut that will give a general idea of the working parts of this device, which seems so simple as to require but a brief description.

Indeed, we are of the opinion that whatever its other merits, *Simplicity* is one of its most valuable characteristics; and yet, we see no reason for disputing the claims of its inventors or quarreling with the manufacturers for asserting that "the Globe middlings purifier is the best." These are matters of opinion that our readers themselves will judge of, and that patentees of other good purifiers—and there are many such—must question, if they please. Our purpose is to inform our readers of the facts; reserving to ourselves the right to claim that every machine is imperfect *if anything valuable is lost*, and to assert *that any machine that is an improvement upon all others* IS CHEAP AT ALMOST ANY PRICE; and every progressive miller will be ready to invest his money in it, and will be richly rewarded. It is said that the "*Globe*" requires less power than any other purifier and that it does the very best work. Its construction seems to indicate the need of only minimum power to operate it; and we are assured the larger machines are successfully operated with an inch or inch and a half belt. The testimonials in favor of its efficient work, in both large and small mills, must be gratifying to both manufacturers and inventors; but while favorably impressed with many features of this simple and ingenious machine, yet we cannot give any assurance as to this or any other purifier. Still, we may be at liberty to say, the "*Globe*" gives evidence of being the embodiment of much thought, practical milling experience and mechanical skill; and, *per se*, it will secure the considerate attention of millers.

This new middlings purifier may be described as a vertical cylinder or drum, placed upon a floor about six by seven feet square, and raised about a foot above the floor of the mill, and secured within a suitable frame consisting of four posts, six or more feet high as may be necessary, that are properly framed together with sills, cross-trees and plates, and two short posts that sustain the front of the machine, and a short post or brace, under the center cross-tree below and sustaining the upright shaft.

On top of the cylinder and opening into it is the exhaust fan, by which the air, drawn through openings at the base and up through the bolting cloth into the large reservoir above the cloth, is forced out of the dust conveyor. Below the fan is placed the latticed framework to which an iron rod is attached, extending to the outside, and by which this lattice or framework is easily opened and closed to any degree and the air currents controlled with the greatest precison. Below this lattice or register is the circuler frame or wooden rim and the corresponding wooden collar around the main shaft, and to this rim and center piece is attached the bolting cloth of any suitable grade. This frame is held in place by iron arms, attached to a hub upon the main shaft, and fastened to the outer rim, and these iron arms are suspended to and held by iron carriers above them that are securely fastened to the central hub, and by iron links, adjustable, are attached to the arms, thereby allowing the vibratory and oscillatory action that is given to the bolting cloth. Immediately under the outer rim of the bolting cloth frame there is an annular space, formed by a box surrounding and framed into the casing of the cylinder. Into this annular case is conveyed, by centrifugal force, the unfinished stock that passes over the rim of the cloth, and it is conveyed to any convenient opening, that may be made at any point, by floats that run in this case by means of the rim to which they are attached and with which they rotate. From the cross tree, below the floor of the machine, the main shaft is perpendicularly erected, passing through the centre of the cylinder and receiving power by an easily running screw-gear on a horizontal shaft, below the purifier floor, and this horizontal shaft receives its motion by either one of the three graduated pullies, at one side of the machine, and belted to corresponding pullies on the fan shaft directly above them. The perpendicular shaft runs on a pivot, in a step at its lower end, and it carries the flour rakes and bolting apparatus and their attachments. The hub of the bolting cloth is ingeniously secured to a slide in connection with a rocker-shaft, extending from a collar upon the main shaft to a rocker-arm on an upright shaft at one corner of the framework, to which movement is given by connection from its upper end with the fan shaft by means of an eccentric and eccentric-



SECTIONAL VIEW GLOBE PURIFIER.

rod, with adjustable connection with a rocker-arm that has a movable wrist, working in a slot. The connections at the lower end of the shaft are adjustable in the same way. By this mechanism both vibratory and oscillatory motion is given to the bolting cloth and regulated at pleasure.

The bolting cloth, circular in form, is easily secured to a wooden center-piece, on the main shaft, and the outer wooden-rim held by the carrying rods. The cloth may be inclined to any desired angle or made level, according to the character of the work it has to do. Beneath the cloth is the adjustable, reversible and at will stationary brush, held in place by being balanced on and pivoted to a rod, secured to the cylinder casing, and extending to the outside of the machine, where a weight is attached, by which the brush is held against the revolving cloth with any degree of firmness desired, or lowered entirely away from it at pleasure. To this rod a cord may be attached leading to any part of the mill, so the miller may regulate it without the trouble of going to the purifier. The feed tubes encase the main shaft and telescope each other, so that the feed is easily adjusted by means of a rod connected with them. The air is drawn into an air chamber, below the register and above the cloth. Motion is given to the purifier by a belt, from double pullies, on either end of the fan shaft, extending to any convenient horizontal shafting of the mill. The only belt other than this main belt is that at the side of the machine, from the fan shaft to the horizontal shaft below the floor, and both may be of any good one and one-half inch belting for a purifier of medium size.

The double purifiers, in the main, are similar to the description above of a single machine, except that they are constructed upon the same general principle with two, three or more duplicate sets of purifying apparatus, one above the other, with some necessary additions or changes for conveniently working the stock, and all incased in a drum or cylinder of larger capacity. These double machines are capable of doing an immense amount of work in a thorough manner, with very little power; and for the larger class of mills, the inventors claim, are indispensible. Each set of machinery is made to work independent of the other or in conjunction with each other. The upper set can be used for scalping the middlings, double dressing on the lower cloth, or otherwise as may be desired. In mills of medium capacity using the double purifier, the upper sieve can be profitably used for the chop, while the lower set may be used for dressing the middlings from the middlings reels.

The practical working of the Globe middlings purifier is simple and efficient. The machine having been properly adjusted and put in motion, the middlings are fed through the feed tubes, and as they descend to the air chamber below the register they meet the strong upward blast of air, produced by the exhaust fan, by which they are thrown into a cloud or spray, like a spray of water from a fountain, filling the large space or globe above the bolting cloth; and here the separation of the impurities from the clean stock takes place. All the dirt, fluff and fine bran are entirely eliminated, as if by magic, and are carried by the air currents to the dust receptacle, while the pure flour and unfinished middlings fall, by their specific gravity, to the bolting cloth, the flour being bolted to the floor below, while the stock to be reworked is thrown by centrifugal force to the outer rim, and falls into the annular box, to be conveyed away from any opening most conveniently made. The ingenious inclination of the bolting cloth enables the miller to so adjust it as to hold the stock upon it for any amount of sifting he may desire, and this, in connection with the perfect controlability of the air currents, secures perfect and rapid work with absolutely no waste of stock whatever, if the miller understands and is attentive to his business.

It is claimed for the Globe middlings purifier that it is more portable than any other purifier; and that, in the knock-down sections that it is shipped in, a mere boy can carry it to any part of the mill. In its operations it is nearly noiseless. It runs with very little friction; consequently, there is no waste of power. Its action being rotary, there are no dead centers to overcome. It is automatic and needs little or no attention. In short, its friends claim for it more than ordinary superiority; and we are mistaken if it does not rapidly gain public favor and prove one of the most economical and popular purifiers in the market.

The company engaged in manufacturing the Globe are prepared to furnish seven different sizes; and we are informed are well able, financially, to carry out their contracts. The officers of the company are Dr. J. Bell President, J. C. Gates Treasurer, E. D. Cooke Secretary, and J. P. Thresher General Manager. The shipping facilities, by lake and rail, are superior; and the company are anxious to have responsible parties test the Globe for thirty days free of cost. Address the company, Benton Harbor, Mich., for any additional information.

Messrs. Schultz & Henry are proprietors of the "Thornburg Mills" at Thornburg, Ia. They have a new 3 run grist and merchant steam mill with purifiers and all modern machinery, and are able to turn out 60 barrels of good flour every 24 hours. Messrs. Nordyke & Marmon placed the machinery, and the proprietors assure us that it gives perfect satisfaction. One of the owners is a practical miller and the other a practical engineer of long experience, and the two make a strong firm.

Death of Allen Bennett, of Jackson, Michigan.

We are pained to have occasion to announce the death of Allen Bennett, a prominent miller and manufacturer of Jackson, Mich. Mr. Bennett's name is familiar to the milling fraternity everywhere by reason of his connection with the manufacture of one of the most celebrated and best known machines used in flouring mills. The following extract from the *Daily Citizen*, Aug. 22, published in Jackson, Mich., gives the particulars of his death and shows in what high esteem Mr. Bennett was held by his fellow-citizens:

For many years Mr. Allen Bennett, Jr., or "June Bennett," as he was familiarly called, has been troubled with rushes of blood to the head, vertigo, and dizziness; but for several days past was more than usually well and cheerful. Yesterday he spent a large part of his time at the new block, going through all the cellars and mounting to every floor with Mr. Richard, the builder, giving instructions and making suggestions. He was there after the men had quit work, and did not leave the building until a few minutes after 8 o'clock. He then went down Jackson street to the Smith middlings purifier works, of which he was Secretary and Treasurer, and after talking a few minutes to some men at the Clinton House, went into his office. About this time the night watchman came, and finding Mr. Bennett there asked him if he would stay a few minutes while he went up town on an errand. Mr. Bennett replied that he would wait for him, and laid down upon the couch in the rear office. Upon the man's return he found the front door of the office fastened, and entered the other door to go to the office by the side entrance, and just as he stepped into the building he heard something fall heavily. Hastening into the office he found Mr. Bennett lying on the floor close to the couch, gasping and struggling. The man sprinkled some water in his face, and began to chafe him, but seeing that he was past ordinary help, he ran for assistance, returning in a very short time with Dr. W. A. Gibson; but they found him quite dead. Whatever the nature of the visitation it was evident that he survived the attack but a few minutes. The remains were removed to his residence, No. 320 West Main street, accompanied by his stricken friends and relatives, and the physician who examined him pronounced the cause of his death to be heart disease. Mr. Alonzo Bennett, brother of the deceased, is, however, confident that the trouble was in the head and that it was paralysis of the brain caused by one of the sudden attacks of vertigo, to which, as we have said, he was subject.

Mr. Bennett was born in April, 1819, in Otsego County, N. Y., and was, therefore, 62 years and a few months of age. He came to Jackson in 1837, one year after his father and brother, and entered into business with them in the store on the north side of Main street, where now stands the Patton Morrison grocery store. John Summer, who married Mr. Bennett's sister, was a partner in the business from 1842 to 1855, when he died, and his heirs, together with Mr. Bennett, own the new and handsome building now in course of erection on Main street. Mr. Bennett's family consists of his wife and two sons, George S. and Charles E. He leaves, besides, his brother, Mr. Alonzo Bennett, and his family, and his sister, Mrs. D. M. K. Johnson, who was formerly Mrs. Summer, and who now lives with her family in Rome, N. Y.

In the death of Mr. Bennett not his family alone, but the city and entire community, have suffered a great loss. None who were not intimately acquainted with him have any idea of the extent of his good works of benevolence and interest in his fellow-men. Many a mechanic has reason to bless his memory. He was not only doing something always which gave employment to mechanics and laborers, but he interested himself personally in their welfare, and many a poor man has he lifted up and assisted in business or some lucrative employment. Only yesterday he was engaged in a work of this kind, and the man he was pushing forward, with scores of others, is as grief-stricken as any near relative can be. Add to this that he was a kind husband, a loving father, and an exemplary citizen, a pleasant gentleman, though always unostentatious and retiring, and that he was actively engaged up to the time of his death in works of enterprise of the utmost importance to the city, and it will be readily seen that the loss will be as universal as it is severe.

By this sad event Jackson loses a citizen whose energy and enterprise have done very much to promote the prosperity of the city. He ever gave substantial and liberal encouragement to all projects to improve the town, and Jackson owes much of its progress to the aid he extended to all works calculated to benefit it. In the death of Allen Bennett a busy and useful life has closed, a good man has gone, a heart ever animated by kindness is stilled, and general regret is expressed everywhere over his demise.

The Globe Middlings Purifier will be on exhibition in the milling department of the Pittsburgh Exposition in September. Sales have been made during the last week in August to Rogers & Son, Walkerstown, Ind.; W. W. Finley, New Buffalo, Mich.; Struts & Son, La Porte, Ind.; Lyman Caroles, Pipestone Mills, Mich.; L. Miller & Co., Peru, Ind., and orders have been received from Bloomingdale, Mich., Kansas City, Mo., and Buffalo, N. Y. Many valuable testimonials have been voluntarily given.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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[Entered at the Post Office at Milwaukee, Wis., a second-class matter.]

MILWAUKEE, SEPTEMBER, 1881.

W. E. CATLIN & CO., No. 68 Lake street, Chicago, sell the "Perfect Feed Box," manufactured by the Case Manufacturing Company, of Columbus, O.

WE call the attention of all millers using mill picks to the new advertisement of O'Connell & Mahoney, Chicago, Ill. They are doing a large business and are giving universal satisfaction to their customers.

A NEW elevator is to be built in Minneapolis, Minnesota. It is to be 260 feet wide and 285 feet long. It will have a capacity of 800,000 bushels and the cost of building it will be $175,000. The work will be finished as rapidly as possible.

WE desire every flour mill-owner receiving a copy of this paper to answer the questions asked in our advertisement in regard to Flour Mill Directory, which they will find in this issue. It is certainly worth the trouble to you to answer our request fully and promptly.

JUSTICE Stanley Matthews has recently rendered a decision in the case of the Detroit Lubricator Manufacturing Co. against the American Lubricator Co. of Detroit, for infringement of patent, in favor of the plaintiff. The action was brought in the U. S. Circuit Court for the Western District of Michigan.

A BOOMERANG.—Bro. Hoppin may be hoppin' mad when he finds out that the "office boy" who wrote the sheer nonsense he ridicules in the N. Y. milling paper is his own Eastern correspondent "Aaron" who, from certain internal evidence, we strongly suspect to be the same as "Long Island," "John the Miller," and other aliases or *noms de plume*, under which he has been carrying on controversies with himself in the Gotham weekly.

RUNNING DOWN.—What is the matter with the *Miller's Journal* (N. Y.) of late? It used to be brim full of terse practical notes on all kinds of milling subjects, and was a perfect mint for some of the scissors and pastepot fiends. Now, there is little or nothing to crib, either with or without credit. Has the entire regular contributors' force gone blue fishing? If they don't get back home soon, some of our neighboring sheets will have to suspend.

The Vinegar Pot.

What is the matter with our good neighbors Stone, Hoppin and Sittig, that they should have recently opened out a shower of gall especially on an Eastern gentleman who contributes to other journals they scissor out regularly? What is the milk in the cocoanut—the nigger in the woodpile—the skeleton in the closet? Have all their ink-bottles been dried up by the hot weather and have they all made the same mistake of filling them with vinegar? Why so much acetic acid—and why, especially in the case of St. Louis and Chicago sheets, must the personal element be introduced?

Among lawyers a motto used to be, "When your client has no standing in court, abuse the opposing counsel." Bro. Hoppin especially must have employed a phonographer and a professor of invective. For profuse, extra-imperial, super-royal, satin-finished, eight-day, self-feeding, continuous-acting declamation, Albert "scoops the cracker."

Personal.

N. T. Barnes, the Western representative of the Throop Grain Cleaner Co., of Auburn, N. Y., called on us Aug. 8. Mr. Barnes reports business to be in a very satisfactory condition.

S. Potts, Esq., of Minneapolis, called on us Aug. 8. He was in Milwaukee introducing some of his machinery in our mills.

Mr. Henry Hamper, representing Messrs. Howes, Babcock & Ewell, of Silver Creek, N. Y., made us a call recently. He reports the business of the firm to be in a very gratifying condition.

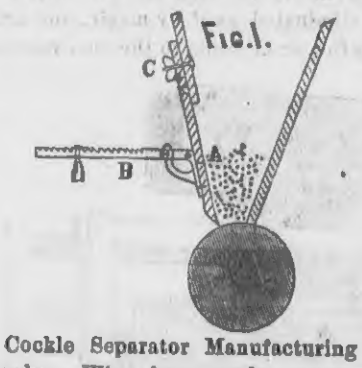
Mr. F. C. Patterson, who has been traveling salesman and millwright for Messrs. Barnard & Leas Manufacturing Co., of Moline, Ill., has just made an engagement with Edw. P. Allis & Co., of Milwaukee, to act in the same capacity for them. Mr. Patterson has a wide acquaintance amongst the milling fraternity and his many friends will be glad to see him as representative of Edward P. Allis & Co.

Potts' Patent Automatic Feeder.

A VALUABLE INVENTION FOR THE USE OF ALL MILLERS.

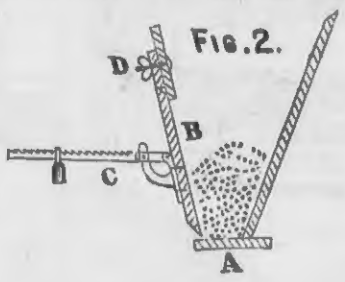
We have been favored with the opportunity of examining the above named device, and find it doing good service, giving great satisfaction and effecting a considerable saving of expense in several Milwaukee flouring mills.

FIG. 1.



The Cockle Separator Manufacturing Co. of Milwaukee, Wis., have made arrangements with the patentee for the exclusive manufacture and sale of this automatic feeder. The price ($6 for brass and $5 for malleable iron) is within the reach of all, and the company

FIG. 2.



offer to furnish any mill-owner a sample Feeder on trial for 30 days. The following claims are made for this device:

First—It saves time that is spent adjusting and watching the ordinary feed board. Second—It gives a uniform feed at all times, which is absolutely essential to do good work. Third—It avoids all choke-ups by the hopper's filling up. Fourth—The material passes through the mill uniformly at all times, which is not the case where the rigid feed board is used, as sometimes the hopper will fill up. Then the feed board is raised, and allows it to pass out, and before the miller knows it the hopper is empty and half the machine is not covered, thus making uneven work.

The accompanying cuts show the operation of the feeder. Figure 1 shows its application

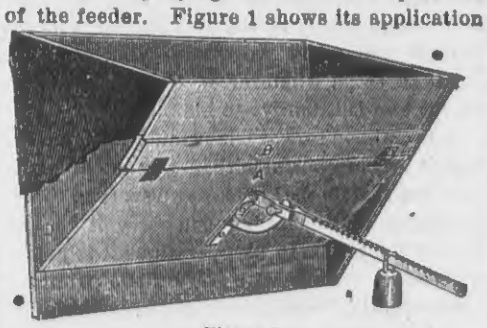


Figure 3.

to a machine with a roller feed. Where the ordinary adjustable feed board is on a purifier it is taken off. A part of the front of the hopper is then cut away. The narrow piece

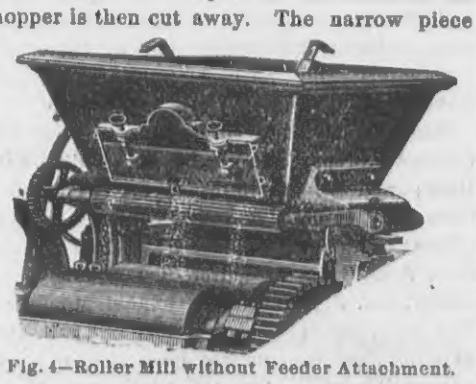


Fig. 4—Roller Mill without Feeder Attachment.

remaining portion of the hopper, as shown at to which the valve is hinged is fastened to the

Fig. 5—Roller Mill with Feeder Attachment.

C. The weight on the beam, B, is set to keep sufficient material (middlings, grain, or whatever it is) in the hopper to fill the full width of the machine. When any more than that comes in, the pressure on the valve, A, on the inside is greater than the pressure on the outside, and opens the space between the feed roll and the valve, thus allowing the material to pass out.

Figure 2 shows the application to a machine having a vibrating feed board, the operation being the same as figure 1.

Figure 3 shows the application to a plain hopper, as is sometimes found on different kinds of machines.

Fig. 4 shows the roller mill without the Feeder attachment, and figure 5 with Feeder attachment.

This and other machines manufactured by the company will be on exhibition in the Milwaukee Industrial Exhibition from Sept. 6th to Oct. 15th, and also at the Pittsburg Exhibition during September and October. This Feeder is already in use in the leading flour-mills of Milwaukee, Minneapolis and St. Louis, and is well spoken of by all.

New Publications.

THE MILLER'S DAUGHTER—A novel, by Anne Beale; published by Harper Bros., Franklin Square, N. Y. Price, 20 cents.

The above-named work is very interesting, and portrays the trials of an honest English miller and his beautiful daughter. It also throws a good deal of light on the smuggling business in England. The book is well worthy of perusal.

STATISTICS OF THE AMERICAN AND FOREIGN IRON TRADES IN 1880 AND 1881—By James M. Swank, Philadelphia.

The above is a valuable work of reference for those interested in the trade and in tariff questions.

WISCONSIN—WHAT IT OFFERS TO THE IMMIGRANT—By Henry Baetz, Secretary of the Wisconsin State Board of Immigration, No. 144 Clinton street, Milwaukee, Wis.

The above-named book will be furnished to intending immigrants free of charge upon application as above.

THE RAILWAY AND MINING GAZETEER—Denver, Colorado. Subscription price, $2 per year in advance.

This is a newspaper devoted to the mining and railroad interests of Colorado and New Mexico. It is regularly illustrated, and is brim-full of the kind of news and information that the investor in Western enterprises most desires. We bespeak the favor of the public for this new paper.

THE ENTERPRISE—Published bi-monthly at 108 South Third street, Philadelphia. Subscription price, $1 per year.

This paper is devoted to the interest of grocers and country merchants, and is well qualified to meet their wants. It is well edited and handsomely printed.

GOD BLESS THE LITTLE WOMAN—A song, published by F. W. Helmick, Cincinnati, Ohio. Price, 35 cents.

THERE are at present in the old world and the new more than 100,000 railway locomotives. Their total force is equal to 30,000,000 horse power, and all the other steam engines on the globe are estimated at 45,000,000 horse power. The technical "horse power," however, is really equal to three average horses, and each horse to about seven men.

THERE are in operation five barge lines between St. Louis and New Orleans in which are displayed 16 tow boats and 103 barges, with a capacity to transport 4,865,000 bushels of grain per month. Twenty-one more barges are in course of construction for these lines which will increase the capacity for conveying to considerably more than 6,000,000 bushels.

SUBSCRIBE for the U. S. MILLER.

Foreign Items.

THE Italian corn crop is very light.

RAILROAD building is progressing rapidly in Mexico.

A FINE vein of coal has been discovered in British Columbia, five miles from Victoria.

Foreign demand for American corn (maize) will be very large during the next year; prices will undoubtedly be firm.

SHIPBUILDING is exceedingly prosperous in Great Britain. Few sailing vessels are being constructed, but a great many steamers of huge dimensions are being built.

MONTREAL, Canada, is a city of 150,000 inhabitants. It contains much wealth. It has ample facilities for a great shipping trade, among which are 4½ miles of wharfage. The increase in maritime business has been 244 per cent in the past 22 years. Her commerce consists chiefly of grain, lumber and cattle. Montreal is the most prosperous city in the Dominion and bids fair to double in size in the next decade.

MR. A. M. SMITH, of Toronto, is about placing on the lakes a new floating monster of great grain-carrying capacity. It is the new iron screw steamship "Campana," purchased by the Canada Lake Superior Company in London, England, and which arrived in port recently. As soon as the new locks are ready she will be taken to Tate's dry-dock and cut in half and fitted with bulkheads. She will then be taken through the canals to Collingwood in two pieces. The "Campana," which is of 1,500 tons burden, is intended to ply between Collingwood and Duluth, and will have a capacity of over 60,000 bushels of grain, besides a large passenger accommodation.

ADVICES from Vienna, of the 7th inst, state that the sale of flour remains in the same quiet state, and the situation was becoming desperate. Consumers buy only from hand to mouth; both bakers and millers are disposed to purchase for September and October delivery, but at prices much below the prices demanded, and millers cannot seriously entertain their offers, owing to the rise in wheat for that period. The export trade is quite insignificant, and business is only possible at considerably below ruling prices. Some small sales of fine flour had been made for England, but of secondary sorts the sale for Germany was very difficult, and the consumption being small, and prices of wheat improving, the prices of this sort could not be maintained. With a great scarcity of forage, and a good demand, prices of bran were very firm.

POPULATION OF AUSTRIA.—The total population of the non-Hungarian portions of the Austrian Empire in December last was 22,130,684, being an increase of 1,735,054 within eleven years, or eight and a half per cent. The population of the Hungarian portion of the Empire was 15,628,923, or one and one-fourth per cent more than in 1870, or but 191,396. This gives a total population in the whole Empire in December last of 7,739,407. Austria contains but four cities having a population of more than 100,000. These are Vienna, with a population of 726,105; Prague, with 162,318; Trieste, with 144,437; and Lemberg, with 110,250.

THE CORN CRIB.—The average corn crib is not what it ought to be, either in size or security from vermin. Much of the labor of the year may go for nothing, save to feed a swarm of mice, if precautions are not taken to keep these little pests from the corn crib. At this season, when the crib is usually empty, means should be taken to clear it of mice, and then, if possible, cut off their access to the grain that is soon to be harvested. If there are any repairs to be made in the roof, siding or floor, they should be made now, that all may be snug in the corn house, when snugness is of the utmost importance.—*American Agriculturist for September.*

The London Exhibition of Milling Machinery.

J. Harrison Carter, Esq., mill-furnisher and builder of 82 Mark Lane, London, E. C., illustrated his Gradual Reduction System at the Exhibition by a special structure consisting of two floors. In a description of Messrs. G. Coats & Co.'s Gradual Reduction Mill at Glasgow, built by Mr. Carter, the *modus operandi* of his system is as follows: The wheat first passes through coarsely fluted rollers, which break the kernel into two pieces. The broken wheat is then elevated into machines which clean it of the impurities which, by the old system, go into the flour sack. The cleaned wheat is then returned to another set of rolls, which break it somewhat smaller, and the products are again cleaned. This process is repeated five times, and most of the offals are then ready for the market. During this separation of the offals from the kernel only a small percentage of flour has been produced, the impure portion being kept separate. The kernel, in the form of semolina and middlings, has by this time been going throughn umerous processes of dusting, sizing, and purifying, through various machines of Mr. Carter's construction. The latter is a very interesting operation. The semolina and middlings travel over silk sieves, with delicately regulated air currents passing upwards through the interstices, and carrying off all remaining light offal particles. The purified material now goes to the smooth rollers to be crushed, and then is elevated into dressing machines. From the latter the fine flour is produced, but, in order to secure a perfectly pure article, all the flour is re-dressed through beautifully woven silk gauze, and then sent by conveyors to the warehous to be sacked ready for delivery. The divisions and subdivisions, purifyings and re-purifyings, dressings and re-dressings, elevating and conveying, which form the gradual reduction roller milling system, appears at first sight most bewildering, and, as still pretty much carried out by the Hungarians, is very complicated compared with the millstone system.

The working of a mill on Mr. Carter's plan is entirely automatic.

The plant shown at the Exhibition consists of fluted and smooth chilled iron roller mills, semolina and middlings purifiers, centrifugal flour dressing machines and a Mooney patent inspirator for exhausting from the purifiers and collecting the dust exhausted.

The outline of the working of the system at the Exhibition was as follows: On the ground plan of the exhibit, fig. 1, the different breaking roller mills, five in number, are shown. The cleaned wheat passes into the first break roll, the resulting meal being elevated to a centrifugal dressing machine, shown in fig. 2, where the flour, middlings and semolina are taken away, the tailings passing to the second break roll for further treatment. This operation is repeated five times to complete the requisite number of breakings. The middlings and semolina are elevated to the purifiers, and after purification pass on to the smooth rolls for treatment, whence they are elevated to other centrifugal reels from which the flour is sacked.

Mr. Carter's centrifugal dressing machine is fitted with a brush detacher in order to break up or dismembrate any of the products that require it. When not required as a detacher it is used as a feed distributor. We may mention that some of the middlings roll[s] work at equal, and others at a high differential speed. In this exhibit there are 11 centrifugals, 2 middlings purifiers, one of the latter being for semolina and one for middlings. The Mooney inspirator is shown for the first time. Mr. Carter's rolls and purifiers are fed by his patent automatic feed, with regard to which the patentee says: "Without the automatic feed the hoppers are always either filling up or emptying, and when an alteration in the gate is made, it is usually considerable, and certainly in the case of the machine or spouts above being choked, is hurriedly made, the man having to run away at once to put things right above, and has not time to adjust the pressure. Any miller, and especially any operative miller, will appreciate the correctness of this statement. My automatic feed prevents these hurried alterations of the gate, and gives the attendant time to watch the pressure, instead of attending to chokes and stoppages. I am aware a common plan is to have a worm passing through all the hoppers, to take the overflow from one into another; but this is a very objectionable system, as it mixes middlings of various qualities. In the above I have referred to the ordinary plants of middlings rollers working in millstone mills; but with a gradual reducible roller mill plant, their use seems to me, now that I have had experience of their working, to be almost indispensable." In order to show the effect of the electric light as a means of lighting flour mills, Mr. Carter used that method of illumination at his exhibit.

Mr. H. Simon, of Manchester, England, made an attractive exhibit of his new system of granulating with a patent self-contained ma-

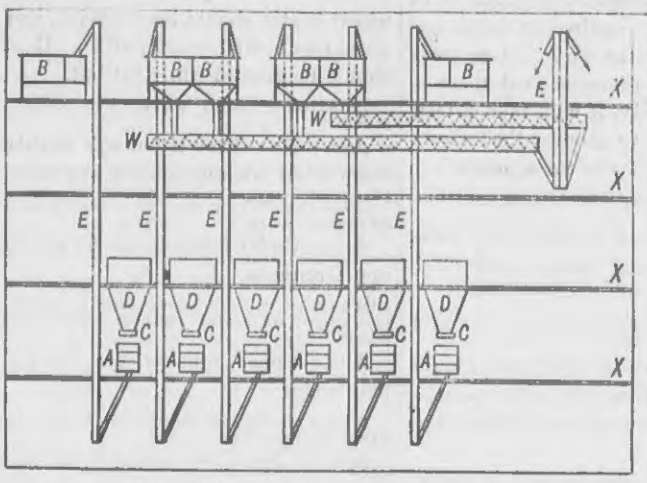


FIG. 1.—PATENT SYSTEM OF GRANULATING WITH SINGLE ROLLER MILLS AND DRESSING MACHINES.

OLD SYSTEM.

X X X X represent four floors.
A A A A A A six roller mills.
B B B B B B six scalping machines distant from the rollers.
C C C C C C six feed rolls to regulate.
D D D D D D six large hoppers.
E E E E E E six long single and short double elevators.
W W two worms or conveyors.

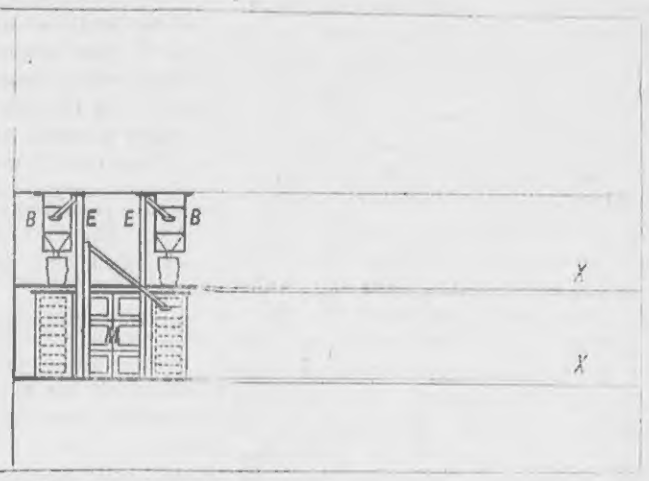


FIG. 2.—NEW SYSTEM OF GRANULATING WITH PATENT SELF-CONTAINED MACHINE.

NEW SYSTEM.

X X represent two floors.
M one self-contained machine, comprising all the rollers and dressing machines for three breaks.
B B two dressing machines.
There are no intermediate hoppers or feed rollers.
E E are two short single elevators.
There are no worms or conveyors.

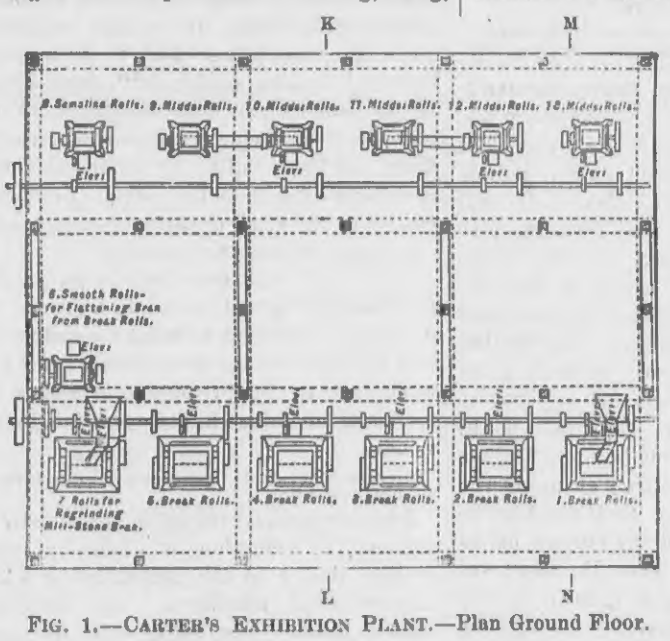


FIG. 1.—CARTER'S EXHIBITION PLANT.—Plan Ground Floor.

FIG. 2.—CARTER'S EXHIBITION PLANT.—Plan First Floor.

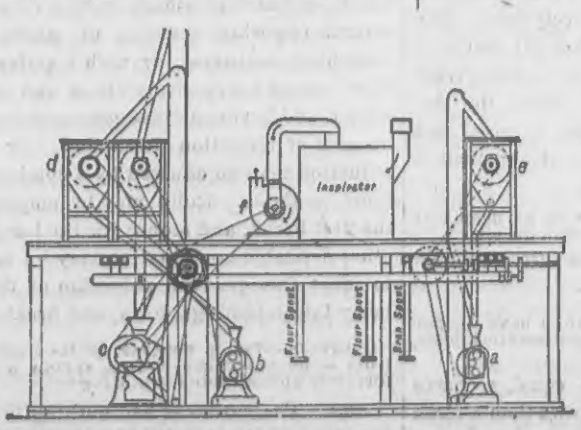


FIG. 3.—CARTER'S EXHIBITION PLANT.—Section Through K L.

a—Middlings Rollers.
b—Bran Rollers.
c—Break Rollers.
d—Centrifugal Silks.
e—Centrifugal Silk.
f—Inspirator Fan.

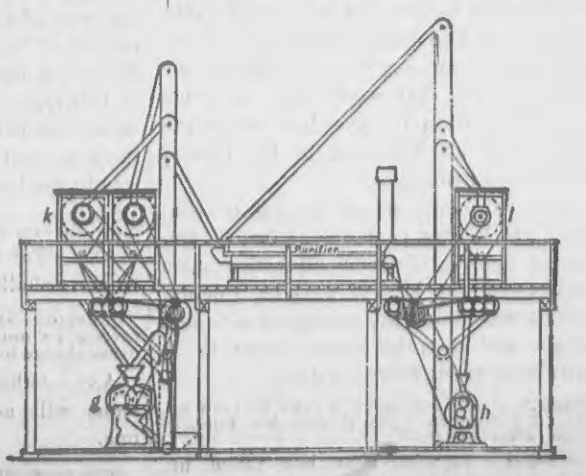


FIG. 4.—CARTER'S EXHIBITION PLANT.—Section through M N.

g—Break Rollers.
h—Middlings Rollers.
k—Centrifugal Silks.
l—Centrifugal Silk.

chine. In describing it *The Miller* (London) says: "The ordinary style of granulation is with successive single roller mills for the several breaks generally located on the ground or first floor, and necessitating an elevator to each mill to carry up the broken material to the corresponding scalping machine on the top floor, and a large hopper with a feed roller over each roller mill. These are often unsuitable to existing mill buildings in this country, which seldom possess the requisite number of floors, and still less frequently floors of adequate height to apply this system advantageously. To meet this difficulty Mr. Simon's colleague. Mr. Heinrich Seck, has invented and perfected a new patent self-contained granulating machine, which reduces the wheat to flour, semolina and finished bran, completely in one compact machine, but at the same time on the high-grinding principle and with as many breaks or as gradually as may be desired. This machine, it is claimed, renders high grinding with rollers possible in a mill with two floors only, whilst saving much power, two-thirds the space, three-fourths of the elevators and worms, and all the intermediate hoppers and feed rollers required by other systems. It consits in a combination of all the rollers necessary for five breaks, with three of the intervening dressing operations. The wheat from the first or cracking break is scalped and dressed in a separate machine as hitherto; the broken wheat is then returned to the combined machine, and the second, third, fourth and fifth breaks, with the intervening scalpings or dressings, are performed automatically and continuously in the same, the meal from these dressings being collected ready for sorting and dressing. The fifth break and the meal from the same are dressed separately as heretofore. The principal feature of the new machine is an improved centrifugal feeding apparatus by which the broken wheat or bran is thrown between the rollers in the most perfect regular manner over their whole width, so that what passes the first roller cannot fail to pass and be properly operated upon in the succeeding ones. The new machine also contains a pair of smooth rolls for grinding the fine pure middlings or dust produced in granulating." The annexed diagram shows at a glance the great saving of space which is effected by the use of this method of granulation, as compared with that which has hitherto been in use by means of single machines.

Milling Questions and Answers.

BY EPHESUS.

[Written for the United States Miller.]

QUESTION—How long should it take to take up, dress, and put down a four foot stone?

ANS.—The time required to take up, dress, and put down a four-foot stone, using the Harris machine, is guaranteed by the maker at two hours. Harris thinks that the difference in stock makes but little difference in the time of dressing.

QUESTION—How often should a mill-stone be dressed?

ANS.—Harris recommends every seventy-two hours.

QUESTION—How long does it take to take up, dress with the diamond dresser, and put down a four-foot burr?

ANS.—The Benton diamond dresser makers put this at from one and a half to two hours for an ordinary miller. They think that it should be done in less time; but that is what an average miller could do, cutting about 36 to 40 lines to the inch. Of course, the more lines the longer time it will take.

QUESTION—What difference is there in the time required to dress hard and soft burrs, close and open stock?

ANS.—The Benton Company think that there is very little difference in the time required to dress hard or soft burrs, the close old stock being about as easy to cut as the new. They think that the only thing that would make the time of dressing longer than that stated would be when a very fine dress is required, and the machine has to cut say 70 to 100 lines to the inch. Of course, that would take so much longer in proportion for the time required to dress, making no difference in the time of taking up or putting down.

QUESTION—How often should burrs be dressed?

ANS.—The Benton people think that the frequency of dressing depends altogether upon the miller and the kind of work he is doing. They find that taking the average of mills that run night and day, the stones ought to be dressed once about every ten days.

QUESTION—How long does it take to take up, dress, and put down a pair of four-foot burrs of close, hard texture?

ANS.—Ellis says that he has taken up, dressed and re-set a pair of four-foot burrs in one hour and forty-five minutes, putting twenty cracks to the inch. This was upon burrs that were dressed for low grinding, two-thirds face and one-third furrow. To fleece or face a burr all around takes longer. To fleece a four-foot burr requires about ten hours.

QUESTION—How often should a pair of burrs be dressed?

ANS.—The Three Rivers Mfg. Co. say: "Dress the furrows when they become dull or out of shape; keep them in as good order as you would any tool, with a feather edge, which is necessary to do good work."

QUESTION—How long does it take to take up, dress, and put down a pair of four-foot burrs, using an emery wheel machine?

ANS.—N. Coplin, Cannen Falls, Minn., says that the length of time required to set the machine is about five minutes, and that to dress depends wholly upon how much work there is to do. For the face only, it will take fifteen to thirty minutes; and to go over the furrows and dress them it would take three hours.

QUESTION—Will the emery wheel dress a soft or a hard burr the fastest?

ANS.—The emery wheel machine will dress a soft, open burr quicker than a hard, close burr.

QUESTION—How often should a burr be dressed with an emery wheel machine?

ANS.—Coplin says about every six or eight weeks with his machine, although some millers would want to use it more often than others.

QUESTION—Should the emery wheel machine be used alone or in connection with the pick?

ANS.—Coplin says that the emery wheel machine should be used in connection with the pick. If there is much work to be done on the furrows, they should first be roughed out with the pick and then finished with the wheel, the facing being done with the machine and six or eight inches of skirt being left to be cracked with the pick.

QUESTION—Ought close stones to have more or less furrow than open stock, other things being equal, and why?

ANS.—Other things being equal, close stones should have more furrow than open stock, because in open stock there is a certain proportion of the surface that is dull by reason of the pores. If the stock be close, there are few pores, consequently the large surface that will be in actual contact, and more furrow surface will be required both to give increased coolness of grinding and to give more cutting edges.

BRAN MACHINES.

QUESTION—What are the advantages and disadvantages of the beater machine as compared with the brush, and the mill stone, for cleaning bran?

ANS.—In reply to this, Messrs. Lawton & Arndt say that the function of the beater machine is not exactly that of the brush. The latter was invented and used on flat milling before the high grinding of to-day was thought of, and the bran sent to the brush machine was a piece of the outer covering of the wheat, on which by the action of the mill-stone, a considerable portion of the inner part of the wheat had been pasted. The brushes and fine wire would remove the flour, which was at best of a low grade, and no contrivances known could raise the grade a bit. When high grinding came into practice, the nature of the bran was entirely changed. The material of value adhering to it could not be removed by the action of the brushes, unless it was made very severe, when the result was not satisfactory, making a quantity of very low grade flour, and imperfectly cleaning the bran. Mill-stones would pretty thoroughly clean the bran, but the entire product was a low grade flour. The rich bran contained parts of the wheat berry large enough to make middlings of, if it could be removed without pulverizing all of the flour or pasting it on to the bran. All of this the Lawton & Arndt machine claims to do. The bran not being put upon the surface but thrown into the air and there subjected to a whipping or percussive action, it claims to remove the particles of middlings without materially reducing the granules or even reducing the flour down to a soft substance, as is the case with the brush, but it is a pretty lively flour. The makers of the beater machines say that it is difficult to show by figures the superior value of this type of machine, for where the machines are put in the grinding is raised, and the bran sent to the machine richer than it was to the brush or the burrs.

QUESTION—Ought the furrows to be deeper or more shallow for high grinding than for low?

ANS.—For high grinding the furrows should be more shallow than for low.

QUESTION—Should a coarse stone have deeper furrow or more shallow than a close stock burr, other things being equal?

ANS.—Other things being equal, a coarse stone will need deeper furrows than a close one.

QUESTION—Should a coarse stone have more or less draft than a close one?

ANS.—The coarser the stone, the more draft needed.

QUESTION—Does New Process take larger or smaller stones than Old Process?

ANS.—For New Process the stones may be smaller than for Old.

QUESTION—How many pounds of wheat should it take to make 196 pounds of straight flour?

ANS.—270 pounds of wheat should make 196 pounds of good straight flour, allowing for all waste of cleaning, bolting, packing, etc.

QUESTION—How may brittle bran be made tougher and easier handled?

ANS.—Brittle bran may be rendered tough as long as it is warm, by the use of steam or other heater. The temperature of the grain in the wheat heater should be constant, and all grain should be heated exactly alike. Heated wheat should be ground while yet hot.

QUESTION—Should wheat be heated with live steam?

ANS.—No; there is enough moisture in the berry itself wishout adding any more.

QUESTION—Which can be run the fastest, upper or under runners?

ANS.—Under runners can be run faster than upper runners.

QUESTION—Which stone should have the finer eye, upper or under runner, other things being equal?

ANS.—Upper runners can have a finer eye than under.

QUESTION—Which stones choke the least, other things being equal?

ANS.—Other things being equal, under stones choke the least.

QUESTION—Which stones are the easier to take down, upper or under runner?

ANS.—The upper runner is easier to take down than the under.

QUESTION—Which stones are the easier to adjust, upper or under runners?

ANS.—Upper runners are easier to adjust than under.

QUESTION—Which stones give the least pressure upon the step, under or upper runners?

ANS.—Under runners give more pressure than upper runners.

QUESTION—Which stones have the greater capacity, upper or under runners?

ANS.—The under runner has the greater capacity of the two.

QUESTION—What kinds of stones are the best for general purposes?

ANS.—For general purposes, the clear white stone is the best. Cream and drab are apt to be good.

QUESTION—How may low grinding be defined?

ANS.—Low grinding is properly applicable to burr milling only. In low burr milling the upper stone was placed close to the lower, so that the reduction produced as large a quantity of flour with as little middlings as possible, the bran being comparatively free from flour. In low grinding by rollers, of course, is understood a reduction which produces a comparatively small quantity of middlings.

QUESTION—What is high grinding?

ANS.—Just what constitutes high grinding is not exactly agreed upon. In a general way it may be understood as being the making of a very large percentage of middlings; and some would limit to the production of a large proportion of middlings in one operation, by burr stones.

QUESTION—What is generally understood by gradual reduction?

ANS.—By gradual reduction is generally understood the reduction of wheat by several breaks, aiming at the production of a large proportion of middlings, and employing chilled grooved iron rolls, each set placed closer together and having finer corrugations than the set before them; and each break being followed by scalping to remove the bran, middlings and broken wheat from the break flour.

QUESTION—Can gradual reduction be effected by any other means than by grooved chilled iron rolls?

ANS.—Gradual reduction can be effected by several sets of burr stones set successively closer together and having successively finer dress; or by single stones or iron rolls, each working against a concave, the distance between roll and concave decreasing with each break; or between stones or iron rolls having several opposing surfaces of gradually approaching nearness; or with a series of iron disks placed successively closer and closer together, and having a dress corresponding to the fineness of reduction demanded. Or gradual reduction may be effected by a combination of these methods. Rolls may be employed for the first break, and stones for the last; or any other desirable combination may be employed to effect the gradual reduction of the wheat berry into middlings, bran, and break flour.

QUESTION—Was it because of its hardness, or from some other cause, that spring wheat was formerly undesirable for milling?

ANS.—The hardness had nothing to do with it. It was simply that its bran was more brittle and hence more difficult to separate from the flour.

QUESTION—Why is it that Brown or "Graham" bread was at one time considered more wholesome than white bread made from bolted flour?

ANS.—As flour was once made, the bread made from "chop" or unbolted wheat meal contained the gluten cell attached to the bran. This bran was only valuable by reason of the adhering gluten. While bran has a scouring or laxative tendency in most cases, it has in many instances an irritatiug action upon the lining of the intestines; so that good "Patent" flour is really more wholesome than "Graham," as it contains just as much gluten and no irritating woody fibre. Besides this, Graham flour so called is in many cases made of low grade flour purposely adulterated with bran, from which all the gluten has been removed by brush machines or other bran cleaners.

Great Engineering Feats.

The *Railroad Journal* in an interesting article mentions that some of the most gigantic schemes ever attempted are now under way or being planned, and mentions among them, the Arlberg tunnel through the Alps, dividing Austria and Switzerland; the tunnel under the English Channel, and the canal through the Isthmus of Corinth In the United States work is being done on the Hudson river tunnel. In Canada a tunnel is planned under the St. Lawrence and it is likely to go forward. In Central America they are surveying for the Panama Canal.

The Arlberg tunnel was projected more than eight years ago and has been made the subject of many learned opinions valuable and otherwise from different scientific bodies. Only last year the Government formally decided upon a route, and since that time work has been progressing. The great height of the Alps between Austria and Switzerland prevented the transportation of freight in that direction, but by means of this tunnel there will be a direct line of communication, only about six miles in length and requiring for its completion six years, and the expenditure of about eighteen million dollars.

As to the channel tunnel, experiments made on both the English and French sides have demonstrated the enterprise to be feasible as the stratum through which they pass is impervious to water, and progress can be made at the rate of two miles a year from each side, by a preliminary tunnel of seven feet in diameter. At this rate, working from both ends communication would be opened in four or five years.

The third European enterprise, the Corinth canal has not yet been started, though everything is rapidly being placed in readiness for the work, in which French engineers will assist, though Turr, a Hungarian, will have charge of the work.

Of works of this nature on our side of the water it is unnecessary to speak in detail, as they are so fully discussed in the papers and so familiar to all, but they are at least not behind in number or magnitude those of European engineers.

"Waitin' Fur Sunthin'."

The old colored preacher had something to say to those do-nothings who are waiting for something to turn up. What he said the Detroit *Free Press* reports as follows:

"I doan' go a cent on de man who am waitin' fur sunthin' to turn up," began the old man, as services were opened.

"Dar was ole Uncle Luke. He waited, an' waited, an' waited, an' at last suntin' turned up. It was de ole man's toes!

"Dar was big Ben Smalley. In de spring or de fall, in winter or in summer, in good times or in bad, he was allus lookin' fur sunthin' to turn up.

"It never occurred to him his own efforts would 'count fur anyfin' but he'd sit, an' sit, an' sit, an' toast his big shins, and fill up on Injan meal, an' wait fur suntin' to turn up. All dat eber turned up fur him was a sentence for six months in de work-house.

"Dar was Sir John Dorkey, who was well-known to moas' of you. He was a waiter.

"He would sit on de fence an' plan air-castles, an' den fall off an' find hisself in de mud. He went to bed at night an' got up in de mawnin' with a feelin' dat sunthin' would turn up.

"P'raps you remember what did finally happen. His ole woman ran away wid a better man, an' Sir John turned up at de bottom of de ribber.

"I tell ye that waitin' an' spectin' an' wishin' doan' pay. One day's good work at a dollar an' a half will put my shingles on de cabin-roof den all de waitin' dis side ob de grave. We will now distract de regular purceedin's."

In the Matter of the Cincinnati Engine Tests.

AN OPEN LETTER FROM JEROME WHEELOCK TO EDWIN REYNOLDS, SUPERINTENDENT RELIANCE WORKS.

My Dear Sir—By a somewhat remarkable coincidence, I am in receipt of your circular letter of July 12th by the same mail in which I received the beautiful "Diploma and award of First Premium for the best automatic cut-off engine tested June, 1880," by the First International Millers' Exposition.

I enclose herewith for your reading a slip from the *Cincinnati Commercial*, July 20, and trust that you will find it pleasant to the eye.

"A Beautiful Medal Awarded by the Millers.

"At the Millers' Exposition last summer there was a premium of $500 or a gold medal offered for the best automatic cut-off engine to be exhibited during the Exposition. There were five contestants, the Wheelock, Harris-Corliss, Reynolds-Corliss, the Brown and the Buckeye, and a recent decision of Mr. Grimshaw, of Philadelphia, to whom the reports of the experts was referred, having given the award to the Wheelock, President Gault, of the Exposition, has had prepared a gold medal (Mr. Wheelock's choice) of beautiful design and rare workmanship, which will soon be forwarded to the fortunate winner.

"The medal is of solid gold, nearly four inches in diameter, a half inch thick, and weighs fifteen ounces.

"One side bears the inscription: 'Awarded to Jerome Wheelock, in lieu of money premium, for the best automatic cut-off engine, tested June, 1880,' and the other in raised letters: 'First Millers' International Exposition.'

"The dedication side is beautifully studded with diamonds, and the reverse bears a millstone and regulator of silver, bevel-wheel and pulley of bronze, and sickle of gold. The medal cost the amount of the award."

An examination of your letter shows that you are in position to "concede to the engine and its builder" all the honor implied by such an award, and I accept your concession in the spirit in which it is intended.

Having settled to your satisfaction that you were in error in *your* statements concerning the cutting in two of my engine frame, you crave the privilege of correcting my statements as to relative weights. I now quote from *my* letter to Hon. Geo. E. Gault, June 11th: "Perhaps he forgets that he has been making use of this matter, and the statements of the expert, to show the superiority of his engine over the Wheelock regarding relative weights." You say we "are entirely wrong," and you deny criticising our engine weight. I here suggest that perhaps this is one of your "clerical errors," and will ask you to turn to copies of your proposition to parties where I have been a competitor with you for the sale of engines. Allow me to correct you in this your "negative statement," and to inform you that you *have* made use of the statement of the expert as to relative weights, and this is what I said June 11th. Again, you quote from my letter of May 7th, and then you say "I left Cincinnati June 19th, and certainly saw your condenser in successful operation before I left. As I was not there after that date, and as your trial did not commence until June 25th, I think your statement slightly erroneous as to matter of fact." Allow me to repeat what I said May 7th, *as a fact:*

"We here submit that none of the other engines were placed under such disadvantages and delays as the 'Wheelock,' which, coming in late, was subject to all manner of hindrance from splitting and deranging of steam pipes, giving us no chance whatever of getting our engine in proper trim before we were suddenly and unexpectedly called on to be tried. Not once had our valves been taken out, not once had we tried our condenser, not once had our regulator been adjusted to a load, or to the nicety required for a close regulator test. On the other hand, the 'Harris' and 'Reynolds' had been in operation for weeks, their valves had been removed, examined and adjusted almost daily."

And to confirm our statement of fact allow us to quote for your perusal from a letter just received from Mr. Gifford, engineer, who had charge of the Wheelock engine at the Cincinnati Millers' Exposition.

NAUGATUCK, Conn., July 27, 1881.

"Jerome Wheelock:

"DEAR SIR—Yours duly at hand. I know very well we were to have the last test at Cincinnati, and did not know we were going on as quick as we did until you came and told me to get ready for the test—that Mr. Brown had backed out. I uncoupled the exhaust pipe and put in our blank, and so doing I remember how you hurried me. This took place just before we started the test. We positively did not try our condenser till we started on the test, and I was greatly surprised to see the difference in the condenser and the one I connected at Newburyport, for I got 28 and 29 there, and I was expecting to see the same at our test. We had to shut down on account of overflow leaking, and filled up our wheel-pit, and take off and dry main belt. Had we tried our condenser before test, we should have found this leak. That circumstance alone is enough to convince any one we never tried our condenser till we started the test, and when Mr. Reynolds says your statement is not true, I must say he is laboring under a great mistake. Yours truly,

FRANK GIFFORD."

In your circular letter to Prof. Grimshaw, May 26th, you are pleased to say that the Wheelock showed 35 times greater variation than the Reynolds. But you have found this a "clerical error," and in your circular letter to me July 12th you seem to find figures that will almost justify our claims to best regulation; and no doubt you are satisfied with them, *and so am I.*

"Competitive honors are the reward of effort, stimulated by rivalry and ambition," and among honorable contestants in all classes of trials there is cultivated a desire to maintain the dignity of a properly made decision; but go where you will, from Maine to California, into the highest circles or among the worst of horse-jockeys and blacklegs, I challenge you to find less honor or less dignity than is found in your course of assailing the motives of Prof. Grimshaw. Allow me to still further state facts. As early as last June, when at Cincinnati to attend the Exposition, I was approached by Mr. Howard Lockwood, who informed me he was to publish a work on milling machinery and he should select the best of its kind in every class, and as he found more to admire in the Wheelock engine than in the others under his notice, he solicited my endorsement and cuts of engine. I informed Mr. Lockwood that no decision could be obtained from me on such a matter until we had been through the test, and he should wait and select by the results of trial. Nothing more was said to me about this matter till the report of the expert came out, and then it was urged again by Mr. Lockwood's agent, who informed me the builders of the Reynolds were offering a great price to get into the work. I offered no objections, but infer that you did not stand well in the test, and you choose to insinuate that Prof. Grimshaw was actuated by other than honorable motives. *I never was under any contract nor agreement with Prof. Grimshaw* other than as above described, and I expect it is one of your "clerical errors" when you say he stated to the builders of the Reynolds engine that I was. Will you kindly read the enclosed quotation from a very ancient work, selected for its appropriate bearing on your case:

"A hungry fox one day saw some tempting grapes hanging at a good height from the ground. He made many attempts to reach them, but all in vain. Tired out by his failures he walked away, grumbling to himself: 'Nasty, sour things, I know you are, and not fit for a gentleman's eating.'"

Very truly yours,

JEROME WHEELOCK.

WORCESTER, July 30, 1881.

A NEVADA SNAKE STORY.—"I want to tell you how my child's life was saved in the mountains the other day, said an old farmer who came into the *Appeal* office yesterday. "You don't mind an item with a snake in it, do you?" Hearing no reply, the old man continued: "Last Tuesday I was coming down from the lake with my little girl, when I stopped the horse and got out to take a drink at a spring, my bottle having given out. While I was drinking my horse got frightened and dashed down the road with the child in the wagon. I only have twelve girls, sir, and I wouldn't spoil the set for the world. Well, I gave up the horse and child for lost; but I followed them up, and presently found the horse right up on the edge of a precipice at a dead standstill. He couldn't move an inch. When I got closer I thought that a strap had caught around his fetlock and one end had also caught around a tree. I went to pull on the stump, and I jumped about ten feet, for bust me clear open, if it wasn't a rattlesnake that was holding the horse. He had wound his tail around the horse's leg and his neck was turned three times around a sapling and his teeth were fast in the wood. He was twelve feet long, sir, for I measured him right then and there. A few pounds more strain would have snapped the snake clear in two. I got the horse away from the precipice. And I might as well tell you the whole truth, the snake wasn't over five feet long, for when I took the strain off he came right back to his natural size. You know how elastic a snake is. The child is four years old and wasn't frightened in the least. If you put this item in the weekly send me four copies—I want 'em for relatives in the East.—*Carson Appeal.*

NO WOMAN should borrow the husband of another; because it is not good for a man to be a loan.—*New Orleans Picayune.*

The Cincinnati Engine Tests.

THE WHEELOCK MEDAL NOT AWARDED BY THE COMMISSION. QUERY: WHO ORDERED IT AND WHO PAID FOR IT?

CINCINNATI, 12th August, 1881.

Edward P. Allis & Co., Milwaukee, Wis.

DEAR SIRS: Your favor, *without date*, reached me yesterday. I reply to your various questions *ad seriatim.*

Question—On what date did the Commission adjourn *sine die*, and terminate its official existence as the legal representative of said Exhibition?

Answer—There has been no meeting of the Board of Directors of Millers' International Exhibition for the last nine months or more.

Question—Was the report of Mr. Hill referred to Mr. Grimshaw with authority to make the award by official action of a majority of the Board?

Answer—No, it was not. I have no knowledge of Mr. Grimshaw, nor of any reference of Mr. Hill's report to him.

Question—Was Mr. Grimshaw's award approved by the official action of a majority of the Board?

Answer—Mr. Grimshaw, so far as I am aware, had no authority from the Board of Directors to review Mr. Hill's report and declare an award, and as a consequence no approval by the Board was given the reference of said report to any one, nor to any act of Mr. Grimshaw.

Question—Was the promised award of $500 changed to a medal by official action of a majority of the Board?

Question—Was the premium medal manufactured and set with diamonds by official instructions of a majority of the Board, and was it paid for from funds in the hands of the Commissioners or by their legal official action?

Answer to the two last questions—There having been no meeting of the Board of the M. I. E. for many months, it follows that any act of Mr. Grimshaw's, any declaration of award, or any change in the nature of the premium, is entirely without color of authority, for which I, as one of the ten late Commissioners, disclaim any and all responsibility.

In conclusion, I have to say, I had never been informed to the contrary, and supposed the Engine Contest ended with Mr. Hill's delivery of his report to the Board of Directors. Very Respectfully Yours,

JNO. S. WOODS.

MILWAUKEE, Wis., August 18, 1881.

Jerome Wheelock, Worcester, Mass.

DEAR SIR: Your letter of July 30th duly received. Your quotation from the Cincinnati paper was certainly "pleasant to the eye." Believing as I then did, that the whole matter of award and manufacture of a diamond-studded medal in place of the premium competed for, was a farce or a fraud, and as I always wish to reciprocate in pleasant things, allow me to present for your perusal a letter from one of the Commissioners of the Millers' International Exhibition, and, lest you think I have made "Clerical Errors," I will send you a photographic copy in the hope that it will prove "pleasant to the eye," as well as instructive to the mind.

But as this letter fails to show by what authority the foresaid medal was manufactured and set with diamonds or whose money paid for it, you will confer an especial favor by giving the desired information. That it was not done by any legitimate authority seems sufficiently proven by Mr. Wood's letter.

Concerning the regulation of your engine, I did show by *your own* system of making comparison (and gave you full credit for being the inventor of the system) and now repeat, your engine did show 35.98 times greater variation than the Reynolds by such comparison.

There was, however, one very marked difference between your method as applied by yourself, and the manner which I applied it. I gave the true figures and results as given in the expert's report, and you did not, but falsified both your maximum and minimum speeds as stated in my last letter, and to which you make no reply.

If this correspondence has assumed a more personal character than is desirable, you can credit the results to your own bad examples and natural tendency of human nature to follow them, and, as a sample of what I consider a fair treatment of the questions at issue, allow me to call your attention to my first communication to Hon. Geo. E. Gault, which was written in ignorance of your then existing letter to the same person in which you also show your idea of the proper method of discussing such matters, as yours was written without any provocation whatever.

Your little fox story revives a somewhat indistinct recollection of another one, possibly by the same author. I will not attempt to quote the exact language, but it runs somewhat in this manner:

"A hungry old fox having entered a farm-yard through a small opening, ate so greedily of the farmer's chickens that he became so puffed up he could not escape by the same hole he went in at," &c.

Your ability to get out through a very small hole, as evidenced by your letter, seems to indicate a necessity of stopping the hole. I therefore paste Mr. Wood's letter over the hole, in the hope that it may attract your attention long enough for you to realize the folly of attempting to humbug users of steam by any bogus medal. Yours Truly,

EDWIN REYNOLDS.

P. S.—Since writing the above, the following letter has been received, for which I bespeak your careful perusal. As Mr. Huntington was the *Treasurer of the Commission*, and fully sustains Mr. Wood (the questions asked being the same) and answers the question "And was it paid for from funds in the hands of the Commissioners or by their legal official action," by saying "not to my knowledge." I respectfully suggest that it is now in order for you to rise and explain by what authority and under whose direction was the medal made, and, finally, whose money paid for it?

E. R.

CINCINNATI, Aug. 17th, 1881.

E. P. Allis & Co., Milwaukee.

GENTLEMEN: The writer has been away from the city and finds your favor 9th inst. awaiting an answer. I do not know the date on which the Commission adjourned *sine die*, and to your other questions can make but one answer—not to my knowledge. Very truly yours,

E. H. HUNTINGTON.

Middlings.

BY EPHESUS.

[Written for the United States Miller.]

The proper treatment of middlings is a subject which is of great importance to the miller, as his profits and losses should be measured entirely by his knowledge of treating them. In the first place the burrs should be so arranged, dressed and run that they would make the largest possible percentage of middlings, and they should be of as even a grade as possible. This is necessary, as it is too troublesome and difficult to purify uneven middlings. Then the grinding of middlings is somehat difficult. The stones must not be too large, not over three feet. They should be carefully and evenly dressed; and the furrows in the bedstone should be shallow, not over one-eighth inch at the skirt. They should also be wide, with very little land. Middlings don't need much land, because there is no bran to clean, and besides they are much more easily pulverized than the wheat, having lost the protecting influence of the bran. Grain can stand rough handling because it has the bran to protect it, and it is the bran that wears and glazes the stones, but the middlings if roughly handled stand an excellent chance of being killed before they reach the periphery of the stone as flour. Besides this, if middlings are ground with wheat they are apt to absorb whatever essential oil may escape from the berries ground with them under the stone. Middlings being very tender, require careful handling. They should be graded also, and each grade ground on a separate stone. Great care must be taken that the spindle does not get out of tram, that the stone is not "in wind," and that both furrows and lands are smoothly dressed. A good heavy stone of small diameter is considered best; and to have this the stone should be backed up with scrap iron instead of with burr block spawls.

It sometimes happens that a miller who desires to bring up the grade of the flour from the first grinding often adds from one-fourth to one-half of the reground first middlings; this gives color and strength. Where no purifier is used, it is best to grind the middlings close, with a pretty heavy feed, in which case it would be well to use half as many runs on middlings as on wheat.

Where a purifier is used in a seven-run mill, there should be at least three runs on middlings, and they should be the sharpest and most even in texture and temper in the mill. In some cases it is necessary to run the burrs slowly in grinding middlings in order to grind fast, but it often happens that in slow grinding the middlings stop in the eye, and in this case it is necessary to use some means of forcing the middlings under the burrs. Many use a rod of wood placed inside the eye, and extending to the balance rind. The rotary motion imparted to the rod by the revolving stone is said to prevent choking.

A Mill Song.

BY HUGH CONWAY.

O, merry and fast is the busy rhyme
The millwheel sings all day,
Yet Robin, the miller, has plenty of time
To spare when I pass that way.
"O Janet," he cries, "I love you well
But keep our secret sweet;"
Yet somehow or other, the lasses tell
Whenever we chance to meet!
O, loud and clear, loud and clear,
The clack of the busy mill,
There's many a gossip about I fear
Whose tongue runs faster still!

The coat of my Robin is white with meal,
That floats from the grain below,
And sometimes it may be, his arm will steal
Where a sweetheart's arm may go!
And the gown I wear is blue and dark,
And bears a token plain;
So the lassies they laugh at the dusty mark
"O Janet, again—again!"
O loud and clear, loud and clear
The clack of the busy mill
There's many a gossip about I fear,
Whose tongue runs faster still.

Points for Millers.

[Written for the United States Miller by a Boston Milling Engineer.]

GEARING.

To lay out a spur gear.—The pitch should be some simple measuare and not a fraction that cannot be laid out and calculated with. Inches and ½ inches, etc., or inches and tenths, etc., may be used. The pitch circle will, of course, under these conditions, always be of some odd radius, for its circumference must contain the pitch distance an equal number of times. We will suppose that a pair of wheels have 32 teeth, pitch 1½ inch. The circumference will be 48 inches, which will give a radius of $\frac{24}{3.1416}$

EPICYCLOID GEARING.

What are known as epi-cycloid gears are just as much hypo-cyeloid, because their external working faces are outlined by one curve and their internal by the other. The proportions of height, depth, thickness, clearing, &c., vary in different establishments, and in different countries. Of course in designing gearing, it is necessary that the pitch be some regular dimension not too fractional. This being the case, the diameter of the working circle will have to be the odd number. No matter what the pitch be, the circumference of the working circle must be equal to that pitch multiplied by the number of teeth. This being the case, the diameter of the pitch circle will be that circumference divided by 3.1416; the radius of the pitch circle being the circumference divided by 6.8232. The radius of the rolling circle, which will be the same inside and out, forming an epi-cycloid curve without and a hypo-cycloid within, may be put as 0.875 times the pitch.

JOURNALS AND BEARINGS.

Grow & Tyler (makers of Grow's convex turbine, Dubuque, Iowa), say that they use for wheel steps second growth white oak, and are particular to have the heart in the centre, so as to provide against wearing one side. As regards the best material for journal bearings, they think cast iron the best if properly fitted; otherwise they would be liable to cut when first used.

EQUIVALENT JOURNALS.

Sometimes it is desired to find the dimensions of a journal that can replace two others of known dimensions, making the same number of turns. In order to calculate the diameter of the new journal we can use this formula, $X=\sqrt{B''\ C''}$. In which B is the diameter of one of the journals, and C the diameter of the other. Thus if B B2 3 inches diameter, and C 4 inches, X, or the diameter of the new journal, will be $\sqrt{9+16}=5$. Where the diameters are in fractions of an inch, then the problem may be done graphically, by laying out the two known diameters at right angles with each other, and joining their extremities; the diagonal being the desired diameter of the journal which will be as strong as the other two put together.

Feed-Water Heaters.

Chas. E. Ashcroft says: To ascertain the the amount of economy a good feed-water heater will give, it is necessary not only to consider the theoretical amount of saving caused by raising the water which is converted into steam, through a certain number of degrees, before it is supplied to the boiler, and which is certain and definite, but to add to this other amounts, which are variable, and can only be approximately estimated. All boilers prime more or less, and unless the steam is passed through a super-heater on its way to the engine, it carries water with it, either in suspension, or in a much more objectionable manner, in bulk. Generally, water is blown out regularly, with a view to removing some of the impurities, and often a considerable quantity passes leaky cocks, valves, etc. All this wasted water leaves the boiler at the same temperature as the steam, and it has to be replaced by an equal quantity of fresh water, to which a good feed-water heater would impart most of the necessary heat, and the amount thus saved has to be credited to it. The evaporative efficiency of a boiler is very materially affected by the proportionate quantity of impurities contained in the water in it, and by the thickness of scale on the plates; the impurities in solution cause the boiling point to be higher, and those in suspension, with the scale, prevent the free contact of the water with the heating surfaces, so that a heater which will remove any of the impurities of the water before it is forced into the boiler, will also reduce the consumption of fuel.

An Inventor.

THE TROUBLE HE CAUSES HIS WIFE BY HIS VARIOUS DEVICES.

"It is all very well to talk about working for the heathen," said one, as the ladies of the circle put aside their sewing, "but I'd like to have some one tell me what I'm to do with my husband."

"What's the matter with him?" asked a sympathetic old lady.

"William is a good man," continued the first waving her glasses in an argumentative way, "but William will invent. He goes inventing around from morning till night, and I have no peace or comfort. I didn't object when he invented a fire-escape, but I did remonstrate when he wanted me to crawl out of the window one night last winter to see if it worked well. Then he originated a lock for a door, that wouldn't open from midnight until morning, so as to keep burglars out. The first time he tried it he caught his coat-tail in it, and I had to walk around him with a pan of hot coals all night to keep him from freezing."

"Why didn't he take his coat off?"

"I wanted him to, but he stood around till the thing opened itself trying to invent some way of unfastening it. That's William's trouble. He will invent. A little while ago he got up a cabinet bedstead that would shut and open without handling. It went by clockwork. William got into it and up it went. Bless your heart, he stayed in there from Saturday afternoon till Sunday evening, when it flew open and disclosed William with the plans and specifications of a patent wash-bowl that would tip over when it got just so full. The result of that was I lost all my rings and a breastpin down the waste-pipe. Then he got up a crutch for a man that could also be used as an opera-glass. Whenever the man leaned on it up it shut, and when he put it to his eyes to find William, it flew out into a crutch and almost broke the top of his head off."

"Don't any of his inventions amount to anything?"

"He says they do. Once he invented a rope ladder to be worn as a guard-chain and lengthened out with a spring. He put it around his neck, but the spring got loose and turned it into a ladder, and almost choked him to death. Then he invented a patent boot-heel to crack nuts with, and gave it up. His coal-scuttle has made more trouble than anything else. It was rivetted to the grate, and, when the fire got low, it would turn over and pour on coal. The rivets got rusty so he couldn't get it off, and I just sit up in bed and listed to that scuttle all night. Then he arranged a corn-popper so it would wiggle itself, and now he can't stop it. You can hear that popper going around in the closet, and he won't let me throw it away, because he wants to invent something to hold it still. Why, he has got out a washtub full of inventions. One of them is a prayer-book that always opens at the right place. We tried it on one morning at church, but the wheels and springs made such a row that the sexton took William out by the collar and told him to leave his fire-engines at home when he came to worship. The other day I saw him going up the street with a model of a grain elevator sticking out of his hip-pocket, and he is fixiug up an improved shot-tower in our bed-room."

"Does he make any money out of his inventions?"

"He doesn't appear to. The other night a man came down and wanted William to get up a patent umbrella fastening. Since then he has wrecked all the umbrellas and parasols in the house. We haven't a thing to use if it should rain. Now he is at work on a combined cat-and-rat-trap. The cats and rats go in at different ends and eat each other up—at least, he says they will; and after that he is going at a pair of pantaloons, in which a man can fall down without spraining his leg. William means well, but he has got the mania for inventing, and I don't know where it will end." And the old woman sighed as she started for home to see what new inconvenience her ingenious husband was preparing to perpetrate.—*Mining and Scientific Press* (*San Francisco.*)

Stocks of Foreign Iron and Steel in Warehouse June 30, 1881.

Through the courtesy of Hon. Joseph Nimmo, Jr., we have received advance sheets of a statement of the Bureau of Statistics showing the quantities and values of imported merchandise remaining in the New York, Boston, Philadelphia, Baltimore, and New Orleans warehouses of the United States on June 30th, 1881. We have thus been enabled to compile the following table, in which a comparisen is made between the stocks held at these five ports on June 30, 1881, and similar stocks held on December 31, 1880, in *all* the warehouses of the United States:

Articles.	Gross Tons. Dec. 31, 1880.	Gross Tons. June 30, 1881.	Values. Dec. 31, 1880.	Values. June 30, 1881.
Pig iron	164,404	39,740	$3,444,946	$823,429
Castings	197	.....	12,448	.....
Bar iron	17,063	4,849	886,284	263,542
Band, hoop, and scroll iron	2,240	762	111,529	34,179
Railroad bars or rails of iron	35,636	18,594	1,270,491	640,994
Sheet iron	1,826	1,354	295,353	178,947
Old and scrap iron	172,510	64,054	4,359,572	1,555,137
Hardware	.....	.....	12,135	14,101
Anchors, cables, and chains of all kinds	42	11	4,919	1,019
Machinery	.....	.....	25,404	24,646
Fire arms	.....	.....	47,605	45,604
Steel ingots, bars, sheets, and wire	.....	.....	252,906	141,796
Railroad bars or rails of steel	34,267	19,139	1,288,507	699,445
Cutlery	.....	.....	5,642	2,220
Files	.....	.....	544	525
Saws and tools	.....	.....	216	216
Other mfrs. of iron and steel, n. e. s.	.....	.....	235,921	76,009
Total	428,184	148,503	$12,258,522	$4,520,209

Of the whole stock of 428,184 tons held on December 31, 413,052 tons were warehoused at the five ports holding the stock of 148,503 tons on June 30. On the 1st of April, according to a statement issued by Thomas J. Pope & Brother, of New York, the stock warehoused at the same five ports was 296,032 tons. The reduction in stocks of foreign iron and steel at these five ports was, therefore, 117,020 tons in the first quarter of the year and 147,529 tons in the second quarter. As will be seen above there were only 148,503 tons remaining in stock on June 30, which is only about 1,000 tons more than the reduction effected in the second quarter of the year. Half of the third quarter of the year has passed since June 30. There can be no doubt that the very great reduction in the stock of foreign iron and steel held at the Atlantic ports is a leading cause of the present steadiness in the prices of domestic iron and steel. —*Bulletin of the American Iron and Steel Association.*

ECONOMICAL USE OF STEAM POWER.—The *Mechanical Engineer* remarks very forcibly: If consumers of power will take the opportunity some time in warm weather, to ascertain what portion of their engine power is used in merely driving the shafting with no work attached, they will doubtless make a discovery that will surprise them. We say in warm weather for the reason that in cold many lines are so exposed that the stiffening of the lubricators employed has a marked effect on the result. The test is simply that of the steam guage, without an indicator or calculations. Year in and year out the line runs, and so long as the belts stay on the pulleys no attention is given. Steam is raised in the morning to full working pressure, and the machinery is not started until the regular hour, but if the steam is raised only to say five or ten pounds and the engine tried, it will be found in many cases that it cannot be moved. It needs no argument to prove that half the steam pressure should not be needed merely to overcome the friction of the line; but a very small percentage is required; what that may be is determined by circumstances. We do not assert that this test may be used in place of the indicator, for it only shows appoximately the steam required to move the engine and shafting, but that it is good as far as it goes no one will dispute. In general terms not five per cent of the working pressure in the boiler should be needed to overcome friction, say two and-a-half to three pounds in fifty pounds, but this is only possible where everything is in perfect order. In by far the majority of factories it will be found that over ten per cent of the steam pressure is lost in moving the parts.

Relative Strength of Woods.

Notwithstanding the common use of wood for pins or tree-nails, no experiment that I know of (writes Mr. J. C. Trautwin, C. E., to the *Wood-Worker*), except one or two isolated ones, and they imperfect, have been tried for determining the extent of its reliability for this purpose. With a view to supplying this deficiency in some measure, I have recently tested several American woods, in the shape of cylindrical pins, .64 of an inch (or full ⅝ inch) in diameter. I used one of Riehl's well-known and accurate testing machines, in connection with an iron holder, and through a cylindrical hole in which the closely-fitting wooden pin to be tested was placed.

Two specimens of each were tried. Where their difference did not exceed 10 per cent the mean is given. Greater differences must of course, be of frequent occurrence, even in good sound specimens. All the specimens were fairly seasoned and without defect. The central pieces sheared off were ⅝ inch long. The single circular area of each pin was .322 of a square inch, and that of the two areas that were sheared at once .644 of a square inch; and since .644 by 1.55 equals one square inch, it follows that if the result in the table be divided by 1.55, the quotient will be the actual double-shearing strength found for each pin of full ⅝ inch diameter.

The following table gives the result in pounds per square inch of total sheared area:

	lbs per sqr inch.
Ash	6,280
Beech	5,223
Birch	5,545
Cedar, (white)	1,372 to 1,519
Cedar, (Central America)	3,410
Cherry	2,945
Chestnut	1,535
Dogwood	6,510
Ebony	7,750
Gum	5,890
Hemlock	2,750
Hickory	6,045 to 7,285
Locust	7,176
Maple	6,355
Oak, white	4,425
Oak, live	8,480
Pine, white	2,480
Pine, yellow, Northern	4,340
Pine, " Southern	5,735
Pine, " very resinous	5,053
Poplar	4,418
Spruce	4,255
Walnut, black	4,728
Walnut, common	2,830

Funnygrafs.

A SOREBACK mule is a poor hand to guess de weight ob a bag o' meal.

"I FIND that with light meals my health improves," said the Esquimaux; and down went another candle.

A YANKEE little girl attempting to describe an elephant, spoke of it as "the thing what kicks up with its nose."

THE Ameer of Afghanistan has been defeated again. He begins to realize the force of the poet's words, "The best laid plans of mice and men Afghan aglee."—*Lowell Courier.*

IS MRS. SHODDIE rich?" asked a street boy of his chum. "Rich! exclaimed the other contemptuously; "yer talking, young feller; rich!" he repeated, "ain't her mouth full o' gold?"—*Boston Transcript.*

A GENTLEMAN was complimenting a pretty young lady in the presence of his wife. "It's lucky I did not meet Miss Hopkings before I married you, my dear." "Well, yes, it is extremely for her," was the dry rejoinder.

UNCLE Mose asked Gus de Smith why it was that the weather was so much warmer in summer than in winter. "I thought every darned fool knew that," growled Gus. "So did I, boss. That's why I puts de question to you on purpose."

SERVING THE CAPITALIST RIGHT.—(Scene—Capitalist in Central Park implores an able-bodied tramp to go to work for him at good wages on his railroad): Tramp (indignantly) "What! leave my country seat here in the park, and work on a railroad? *No!* I would rather see you *starve* first.—*Harper's Weekly.*

A GALVESTON school teacher asked a new boy, "If a carpenter wants to cover a roof fifteen feet wide by thirty broad, with shingles five feet broad by twelve feet long, how many shingles will he need?" The boy took up his hat and slid for the door. "Where are you going?" asked the teacher. "To find a carpenter. He ought to know that better than any of we fellows."

THEY met on the stairs. "Hello!" "Hello!" "Say, old boy, you are growin' mighty careless." "How?" "Why, just now I found the door of your room wide open." "That's all right. I havn't been gone a minute." "Well, I knew you'd do the same by me, and so I shut it." "Thanks. The first time I find your door open, the spring lock set to catch, and the keys on your desk, I'll return the favor. Please send me up a burglar and crowbar as you go down."—*Denver Tribune.*

Our European Review.

BY HOLMOPHILOS.

[Written expressly for the United States Miller.]

In looking over the European milling journals I find several essays worth communicating to the readers of the UNITED STATES MILLER. I will reproduce their most interesting contents in condensed shape. In No. 6 of the *Muehle*, headmiller Geo. Walter, expressed his sound ideas on rolls, their surface and work. He says:

"Rolls of adhesive propensities running with differential speed, require little power and grind much and coolly. They deliver a very loose meal containing sharp and rich flour, which will bolt very freely. It is profitable to grind fine and soft dust middlings with such rolls, but they are not fit to grind hard, branny products, as their grinding action would more or less deliver pulverized bran with the flour, thus deteriorating the latter very much, etc. All attempts to grind dust middlings on corrugated rolls have been failures, for the corrugations had to be microscopically small; thus they clogged up easily and the corrugations wore off in a very short time."

When rolls are working on bran or middlings and they are set as close as possible without touching, they will not stay so near together when feed is entered, no matter how much pressure is applied and how carefully the gauging nuts are set which are intended to keep the roll bodies apart. There is in every roller mill built up to date enough spring or elasticity in the castings to allow the opening of the rolls proportionately to the quantity of feed entering, and in all cases the gauging nuts have to be set back a trifle, after bran or middlings are passed in between the rolls, in order to do perfect grinding. If the feed should stop for a short time, in case of clogged feed gates, etc., the finely corrugated rolls, running quite differentially, will touch each other, and they mutually will wear off their corrugations. The surfaces of smooth iron or porcelain rolls will not be hurt by running together, for they seldom are run at more differential speed than 1 to 1½. The rolls will of course get hot by their mutual friction, but will work as well after being cooled down as before.

He further says:

"The corrugated rolls are used with equally great advantage for the reduction of hard and soft wheat. The oftener the reducing is repeated the better is the result. They will grind corn and rye also with less power and more perfectly than stones, provided the corrugations are of the three-cornered shape and sharp (saw tooth creases). The smooth chilled rolls are mainly used for sizing coarse and crushing branny middlings; they produce pure flour and dust middlings, the branny impurities are flattened and will pass over the tail of the reel. Like a good many other millers, I do not think it profitable to grind with polished chilled iron rolls. For that purpose I employ porcelain rolls. They are more adhesive, and of a certain sharpness, and are of a gritty texture. They rub enough on the soft middlings to granulate them and not enough on the branny impurities to pulverize them. I say emphatically that *it is possible* to grind out middlings completely with porcelain rolls, and, by a proper use of rolls, caking can be avoided entirely. I speak from experience; I am very much satisfied with my flour, obtained by porcelain rolls on account of its exceeding sharpness and color. Almost every week brings on the market a new construction of a roller mill. The users of rolls are very much puzzled by the exalted merits claimed for each individual one. The millers must chose the right corrugations for their break rolls, taking those of three-cornered shape; they must use chilled iron rolls for crushing and porcelain rolls for grinding, and about the frames and their conveniences, adjustments, etc., they must use their own judgment, and consult their fire-proof safes; for the more adjustments a roller mill has and the more substantially it is built, the more money is asked for it all over the world!"

No. 15 of the *Allgemeine Mueller Zeitung* furnishes this item:

"The milling industry of the Argentine Republic is developed considerably during the last few years. In the province of Santa Fe alone are to-day nearly 30 steam mills. The largest mill is the San Carlos, and it is the property of a German, Mr. Wm. Bauer."

I have heard that Mr. Wegmann has filled large orders for South American mills during the last two years, and of Mr. O. Oexle I have learned that he has furnished the plans for several mills for the southern end of our continent; these mills are mostly provided with porcelain rolls to grind the purified fine middlings and dust-middlings.

In No. 16 of the *Deutsche Mueller Zeitung* I read an article by Dr. Sellnick, on belted roller mills. It is an astonishing essay. I will cite a few sentences of it:

"Noiseless rolls are to-day (he writes this in April 1881) demonstrated possibilities, on account of Fr. Wegmann's invention of noiseless wheels. Wherever new porcelain roller mills with those wheels have been put up during the last few months, or old roller mills were provided with them, flattering reports of praise and satisfaction have been made, etc. The more it was expected that the porcelain rolls could not be made to work noiselessly, the more pressing became the demand for *noiseless rolls*. In the general meeting of the German Millers' Association (September 1880) a report was read on the American milling industry. The culmination of this eulogy seemed the noiselessness of the American roller mils. Yes, the problem was solved, yet not by belts. The idea of causing rolls to work noiselessly by driving them individually by belts is not so grand, that we deem it necessary to find it so very ingenious."

Then he goes on to explain that Mr. Wegmann had tried various ways of making the gears to work noiselessly and at the time of the report before the Millers' Association, Mr. Wegmann had just discovered the right way. He further explains that "Mr. Wegmann had tried many ways of driving the rolls by belts and that the belt drive was not found positive enough to ensure the right amount of differential motion."

Very well. If we should make the belt 12 inches wide, we will employ the belt, for, setting aside the idea of noiseless wheels, the crowding of the teeth is a well-known impediment to the lasting of the rolls. I have seen a man grinding with a 15-inch emery wheel, running 900 revolutions per minute, sixteen hours, taxing a grinding machine as much as it could do, to remove the teeth marks from the porcelain shell after having been driven for two years by wheels. The black stripes were not taken out entirely after these sixteen hours of steady work. (The roll was blackened by handling, before grinding was started.) The springs *will* press rolls forcibly together when the teeth are at certain positions, and every tooth will have its chance to leave its mark.

Gears noiseless? Even corewheels make a noise, and what are the newly invented gears of Mr. Wegmann? They are hollow wheels, into which a mass is poured,—it may be zinc, plaster paris or buckshot. The ringing will be checked I admit, but the teeth will jar the floor as much as in the case where any solid wheel is used. Also where wheels are small, the ringing is but very insignificant; it is the rattling noise, the unsteadiness of the floor and the rolls and the destruction of the shells that we *must* obviate; the latter we have to look out for the most, as those porcelain shells cost us many of our "almightics," and it is a matter of delay and expense to have our rolls reground so often.

The *Walzenmueller* contains an essay on wheat storage elevators of the American style. It gives as one of the main reasons, that they can only be built and be lucrative when the wheat is inspected and classified like ours is.

One other great hinderance to the introduction of elevators is, that their location and construction are dependent on a crew of Government officials, who have to give their "concession," and those men have so many objections as to the degree of beauty of the exterior, the thickness and the material of the walls, the danger of fire, etc., that many attempts to build elevator houses at the most convenient places have been defeated. So it was at Pest, two years ago. I learn by the *Walzenmueller*, that the petition is to be reconsidered and will undoubtedly be accepted favorably.

I think, the time is not far distant, when Europe will have elevators at the seaports to unload ocean ships and re load canal boats or railroad cars for further transportation of cereals, and also at the greatest wheat raising and milling centers. But it takes *so* long!

In *La Ligue de l'Agriculture* I am pleased to see several items on American flour; the paper giving us great credit for our progress in milling, and the conclusion of almost every item about us is like Cicero's *Ceterum censeo:* Take notice or this, French milling industrials! I am of the opinion, that the Frenchmen will rush into the construction of roller mills pretty soon; their beautiful mill-stones are keeping them behind a rather long time. No. 18 of this paper contains an article, entitled "French Milling," which brings the news that Messrs. Darblay & Beranger, the great millers at Corbeil and St. Maur, have sold their mills to a wealthy stock company, which transaction has created quite a sensation amongst the grain and flour merchants in France. For forty years Darblay's flour was sold 1 to 2 francs higher per sack than all other flour produced around Paris. The great secret of Darblay's success was the evenness of color and strength of his flour, and the reliability of his brands. They formed the market standards between millers and bakers, and contracts were made on flour "as per Darblay's brands." The mill at Corbeil contains 24 pairs of stones, it is driven by two large breast wheels and two turbines. The mill at St. Maur is a combination of four mills, each driven by a separate turbine wheel. Each mill contains ten runs of stones, and can be run independently of all others. The reason of sale is that Mr. Darblay wants to give up the business, being tired of it. All employes remain with the new company, which, if it continues the business as correctly and reliably as the Darblays, is bound to succeed.

I never was at those mills, but am told by millers, having been there recently, that the low-grinding system is used at both mills. They have no rolls at all and but very few purifiers to clean the fine middlings, which even with the operator's best intent could not help but be produced. The mills will have to be rebuilt if their fame is to be maintained.

The *Ungarische Mueller Zeitung*, No. 25, contains an article entitled "A new low grinding roll," and describes below the Ganz roll, which was exhibited at Cincinnati and recently at London:

"Three corrugated rolls, located above each other, allowing two passages for the wheat. When the first passage between the highest and the middle roll is completed, the reduced wheat drops on a short wire sieve, vibrated in such a manner that it carries the meal up, thereby effecting the most perfect separation per unit of surface. The tailings of this sieve are passed between the middle and lowest roll and ground in such a manner that the bran becomes clean and finished. That which passes the lower pair of rolls also drops on a shaker sieve carrying upwards."

Some soft wheat can easily be ground down at once to obtain clean bran, but hard wheat will need two reductions. A miller reducing his wheat on stones, doing low grinding, will produce a cleaner bran, make a better flour and a better yield with a low-grinding corrugated roll. If he grinds soft wheat, one reduction will be satisfactory; but if his wheat is hard, he must have a roller mill fit to make two reductions. I have never seen the Ganz low-grinding mill at work, and do not know how they can bolt well on so short a shaker (20 inches long). I also do not know how they can keep the meshes from clogging. The longer the meal is retained on a shaker, the more it will be amassed, and the poorer will be the separation; and how easily wire cloth clogs up if broken wheat or bran is spouted on I noticed when W. D. Gray was experimenting with his gradual reduction machine, which I think is far superior to any other wheat-reducing contrivance, not excepting the Ganz low-grinding roller mill. Gray tried short shakers which carried up. He increased their speed to 700 strokes per minute. The stuff formed too thick a layer; did not bolt well; and, after he had run the machine for *one* hour, every mesh of the cloth was filled up. He tried knockers, striking the cloth four times per minute; but the momentum of the branny pieces jammed into the meshes was too small to enable them to jump out when the cloth was struck. He finally made shaking sieves five feet long, and as wide as the rolls; shook them 500 strokes per minute, pitching them down so much inclined that the layer could never become more than ¾ inch thick; and applied stiff-bristled traveling brushes underneath the cloth to keep the bolting facilities in as perfect a state as possible. The tailings of his sieves are well separated. E. P. Allis & Co. are the sole manufacturers of the Gray gradual reduction machines. They began building them about three months ago, and are now turning out and selling as many as two machines per day. These machines are better fit for soft wheat than break rolls with hexagon scalping reels. The sieves will leave the soft coarse middlings sharp and large, but the sharp wire cloth of a reel, the angular construction of it tend to break the coarse middlings, round all the middlings and produce dust-flour, which reduces the percentage of patent flour and adds to bakers—resulting in a loss. Many small mills up to 150 barrels capacity per 24 hours will have to have a series of these reduction machines; two machines will make four reductions and with three the miller can make six breaks like the best and largest mills in this country. The machines take but little room and the miller himself can put them up without hiring millwrights to tear out machines and put in break chests and elevators.

I see that at London a two-roller mill was exhibited, gotten up by Mr. C. G. W. Kapler, at Berlin, Germany. This mill is described by Prof. Van den Wyngaert in No. 26 of *Die Muehle*. It bears a remarkable similarity to Gray's rolls, and especially the frame has the same shape as the first twelve rolls E. P. Allis & Co. turned out. The swing boxes, pivoted on eccentric bolts for leveling purposes, the encased top coil springs, the pull-rods, the checknuts, and the throw-out, are gotten up after the style of the best American roller mill. The Germans believe that a thing is good when they see it. The Kapler mill was placed not far from Gray's rolls at the London Exhibition. Many visitors may have thought, by comparing both roller mills, that this was another illustrated example of the unprincipled patent-annexing propensity of the Yankee.

In all the German milling papers, an article is reproduced of Mr. Richard C. Witt, treating of the centrifugal flour dressing machines. He states their advantages as follows: "They require but little room and have large capacity." The disadvantages he enumerates thus: "They consume too much power, are fast running machines, and as such are sources of minute attention for the miller: the cloth has to be extra strong and extra fine to obtain good bolting results for any length of time; the cloth is worn through very fast even if it is extra heavy and the re-clothing requires too much time and skill." Mr. Witt comes to the conclusion that the centrifugal flour dressing machines are not profitable contrivances at all, and the common reels are to be preferred in every instance for bolting mill products. He is, according to my views, a little too radical. I am not a fanatical friend of either the common reel or the centrifugal one, but I am of the opinion that the latter is best adapted for bolting low grade flours, whether the meals come from stone or from rolls, either of porcelain or iron. Especially for our way of making easy saleable low grade flour on rolls, the centrifugal flour dresser cannot be replaced by a common reel. We do not need detachers, and the light and soft low-grade stuff bolts very easily on the centrifugals owing to the aspirating and throwing action of the beaters. The meal is simply too light to bolt well by its own gravity.

BURNED.—August 29th, the saw and grist mill belonging to Wm. Perry, at Mt. Sterling, Ohio. No insurance.

NEWS.

EVERYBODY READS THIS.

ITEMS GATHERED FROM CORRESPONDENTS, TELEGRAMS AND EXCHANGES.

E. Fryer of Logan, Ia., has sold his mill.

BURNED.—Fawcett Bros.' mill at Halleck, Mo.

BURNED.—George Gamble's mill at Muncie, Ind.

BURNED.—E. B. Taylor's mill at Gallatin, Miss.

BURNED.—Brown Bro's. mill at Webbs Mills, N. Y.

Nalls & Co., millers of Alexandria, Va., have failed.

Gilbert & Carey, of Council Bluffs, Ia., have dissolved partnership.

The Denver & Rio Grande Railroad is now open to Durango, N. M.

W. Frissell has sold his mill at Hematiti, Mo., to England & Kelly.

J. W. Pickle, of Cambridge, Neb., has sold his mill to Lindsey Bros.

Calvin Morgan, miller in Nashville, Tenn., has made an assignment.

P. Murphy has bought Jno. Phillips' grist mill at Money Creek, Minn.

BURNED.—Webster & Dillingham's mill in New Orleans, La. Total loss.

Charles Smith has purchased Robert Cockburns mill at Campbellsford, Ont.

Harry W. Adams has sold his mill at Litchfield, Ct., to Wm. F. Baldwin.

Clauson & Bierbaum, millers of Fillmore, Minn., have dissolved partnership.

J. C. Scott & Co., have recently purchased Leroy Moors' mill at Pemberville, O.

Geo. E. Letcher has sold his mill at Swanton, Ohio, to John E. Mattern.

BURNED.—Jervis Gordon's mill at Milford, Pa. Loss $8,000. Insurance $5,000.

BURNED.—N. A. Egbert's flour mill, at Charlotte, Mich., is reported burned.

Kinney Bros. have recently purchased the Salem flouring mills at Salem, Oregon.

BURNED.—L. F. Wilson's mill at Ossian, Ind. Loss $4,000. Insurance $2,000.

BURNED.—C. F. Lucke's mill at Greenleaf, Wis. Loss $8,000. Insurance $5,000.

D. R. Buck's mill at Berlin, Ill., burned recently. Loss $7,000. Insurance light.

BURNED.—R. & W. Neeley's flour mill at Franklin, Va. Loss $2,500. No insurance.

Daniel Click's mill at Sheridan, Cal., was recently damaged by fire to the extent of $1,000.

E. Hoag & Son, of Manchester, Ia., are making extensive improvements in their mill.

Chase & Blanton, whose mill in Indianapolis was recently burned, have dissolved partnership.

J. W. Torrens, of the milling firm, J. W. Torrens & Co., at Brewer Village, Mo., is dead.

Higbee & Co's. elevator at Fremont, O., burned recently. Loss $3,500. Partially insured.

The Fort Atkinson, Wis., Sleigh Works have been removed to Milwaukee. They employ 65 men.

BURNED.—August 5th, J. Lacey & Co.'s rye flouring mill at Cleveland, O. Loss $25,000. Insured.

BURNED.—W. S. Hogelmann & Co.'s mill at Painted Post, N. Y. Loss $3,500. Insurance $500.

The mill race at Jackson Bro.'s new mill at Cawker City, Kansas, recently gave way. Damage $1,000.

Jacob Lasey & Co., of Cleveland, Ohio, have recently lost their mill by fire and have made an assignment.

BURNED.—Aug. 29th, Wm. Mellen & Sons' flouring mill at Beaver Falls, Pa. Loss $20,000. Insurance $15,000.

The Pillsbury A mill, in Minneapolis, has been turning out 2,200 barrels of flour per day during the past month.

The Beloit, Wis., Reaper Works are being moved to Milwaukee. They will employ constantly from 500 to 600 men.

BURNED.—August 8th, the flouring mills of Davidson, Edwards & Co., at South Point, Ohio. Loss $12,000. No insurance.

Henry Vahlburg's mill and elevator at Evansville, Ind., was recently attached on claims for $8,000. The mill is closed.

Capt. E. W. Pride is furnishing F. Miller & Co., Watertown, Wis., another set of Stevens' rolls in addition to those already in use by this firm.

Capt. E. W. Pride has the contract for a line of Stevens' rolls that are to be placed in the mill of W. H. Stacy & Co., Clintonville, Wis.

The 640 miles of broad guage railroad track between Cairo, Ill., and New Orleans, was recently changed to the standard gauge in twelve hours.

E. W. Pride, Neenah, Wis., has the contract for a line of Stevens' rolls that are now being placed in the mill of Messrs. Rush & Spielburg, at Merril, Wis.

The bankers of the United States and Canada have been holding a convention at Saratoga, N. Y. Many interesting papers were read, and the proceedings were generally harmonious.

BURNED.—August 24th, Fred Voltz's mill and bakery on Milwaukee Avenue, in Chicago. Three fireman were fatally injured and several other persons seriously hurt. Loss $25,000. Insurance $22,000.

Mr. E. W. Pride has the contract for a fine line of Stevens' rolls in the mills of Norris & Dow, Stoughton, Wis. John Johnson is the superintending millwright, having a force of millwrights employed on this job under his directions.

The recent reports of the Chamber of Commerce of Cincinnati shows that the manufactories of that city employ 30,268 operatives the value of whose productions during 1880 was $47,000,000. The population in June 1880 was 255,708.

Mr. E. W. Pride has the contract for a line of Stevens' rolls that are now being placed in the mill of Bird, Bride & Co. of Warren, Wis. The arranging of the system, etc., is being done by John Johnson of Neenah, Wis.

Mr. E. W. Pride has the contract for a full line of Stevens' rolls that are now being placed in the mills of Messrs. Coman & Morrison, Fox Lake. His Neenah's favorite millwright, John Johnson, has the contract for the remodeling of these mills.

It has been reported that in the San Juan county, Colorado, that "there has lately been uncovered large fields of variegated marble, capable of being worked into all the useful forms for which such material is used and of taking a beautiful polish."

Capt. E. W. Pride, representing J. T. Noye & Sons at Neenah, Wis., has the contract for a full line of Stevens' rolls that are now being placed in the mills of the Oconto Company at Oconto, Wis. Mr. John Johnson of Neenah, Wis., is the superintending millwright.

A syndicate of American, French and German bankers has resolved to construct a canal from Baltimore to the Atlantic, across the peninsula of Maryland and Delaware, at an estimated cost of $8,000,000. Baltimore commerce will thus gain 225 miles of sailing.

The total daily capacity of all the paper mills in the United States is 2,500 tons. There were 16,500 tons more exported in 1880 than in 1879. Paper can now be purchased as cheap in New York as in London. The production of paper has been 25 per cent more this year than last.

Mr. Perroult, of Montreal, went to Paris and organized a company to run a fortnightly line of steamships between Rouen and Montreal in summer and Halifax in winter. The French Government will give a subsidy of $100,000 per annum for ten years, and the Canadian Government $50,000 for three years.

Messrs. Ogilvie & Co., of Montreal, will soon build a large flour mill at Winnipeg, Manitoba. The Winnepeg City Council have exempted it from all taxation for 20 years. Of course this is very pleasant for Messrs. Ogilvie & Co., and may have been good policy for the citizens of Winnipeg in this case, but it is establishing a bad precedent.

Mr. E. W. Pride has the contract for a full line of Stevens' rolls that are now being placed in the mills of Coleman, Jackson & Co., at Stevens' Point, Wis. This makes the second order of the kind filled by Mr. Pride to this firm, who have a large mill also at Grand Rapids, Wis., in which the Stevens rolls were placed last year. Mr. John Johnson, of Neenah, is the superintending millwright in the changes now being made.

The following mills are putting in new cleaning machines, and have lately bought the Galt combined brush and smutter, made by the Eureka Manufacturing Co., of Rock Falls Ill: Kirtland Bros., Oblong, Ill.; P. K. Snyder, Easton, Pa.; A. S. Piatt, Mack & Check, Ohio; W. E. Thomas, Millford, N. J.; Smith Bros., Cochranton, Pa.; M. Schultz, Shipman, Ill.; Wolf and Hamaker, Allentown, Pa.

The Board of Directors of the George T. Smith Purifier Company held a meeting August 22d, at which Milford Harmon was elected Secretary and Treasurer, in place of Allen Bennett, deceased. Mr. Harmon has hitherto acted as mechanical superintendent and business correspondent, and is thoroughly acquainted with the affairs of the company. No other change was made in the officiary. W. D. Thompson continues as President, and C. B. Knickerbocker as general manager.

The following firms have lately bought the well-known Becker wheat brush, made by the Eureka Manufacturing Co., of Rock Falls, Ill: Wolff Bros., New Haven, Mo.; Fanek & Hubbard, Preston Hollow, N. Y.; Bathy Bros. & Boynton, Waverly, Ill.; Hickox & Co., Cleveland, Ohio; C. H. Van Stone, Marshall, Mo. A. P. Goddard, Freeport, Ill.; A. R. Stone, Knoxville, Ill.; Rardin Bros., Westfield, Ill.; P. Thompson, Georgetown, Ky.; L. B. Weisenburg, Frankfort, Ky.; Dwyer Bros., Harrisburg, Ill.; Falls Power Milling Co., Louisville, Ky.; Joseph Pollack & Co., Vincennes, Ind.; Kehlor Bros., St. Louis, Mo.; W. C. Dow & Co., Cleveland, Ohio.

Old Mills.

[Communication to the UNITED STATES MILLER from John W. Hinton.]

Old mills are always subjects of interest, whether seen by the tumbling brooks, by the dam sides, or outlets of lakes, or skirting the rivers, or painted in landscape views. Wherever seen, old mills are always interesting. There is something charming, as it were, in the sight of a wind-mill. As one says "they are in a measure the source of our bread."

Many a novel, many a song, has been founded upon a "mill." Some of the sweetest pictures have an old mill for their prominent object. The mill-pond, how often the primitive fish-pond of the boy? Perhaps it was a boy fishing in a mill-pond, that suggested or rather inspired the couplet of L. E. L., one never surpassed for pointed truth:

"Oh, what are earth's prizes we've striven to win?
Like the first little shiner we caught with a pin."

Then think of our first little theatricals, our miniature theatrical stage, with rude scenes and curtain, the automatic movement of the figures pushed on, or drawn off the stage by a wire, because it was invisible. What old country boy forgets that play *The Miller and His Men*—when the wind-mill in the distance had its arms moved round and round, by a thread wound about a cotton spool and pulled by a boy assigned specially to that part. And then, when in the finale in the last scene, all the figures were found, when the curtain rose, in front of the mill, all the boys back of the sheets stretched clear across the room sang that old miller's song:

"When the wind blows,
Then the mill goes,
Our hearts are light and merry,
When the wind drops
Then the mill stops,
We sing hey, down, derry."

The play usually winding up with the destruction of the mill by fire.

Many and many a miller throughout Wisconsin, Iowa, Minnesota, &c., remembers the old mill of his grandfather or his father, his good old father in the old land, and many have heard sung and will recall to mind, as he reads the song we append—one of those touching, sweet and pretty old English songs. Many of the readers of the UNITED STATES MILLER will undoubtedly cut it out and paste it in their scrap book:

MY GOOD OLD FATHER'S MILL.

Shall I e'er forget the valley,
Or the gentle rippling rill,
Whose unwearied waters wander'd
Through my good old father's mill?
Where oft in happy childhood
The limpid brook I'd leap,
Or range at will the wild wood
Or climb the craggy steep?
Shall I e'er forget, &c.

Shall I e'er forget the valley,
Or those friends to memory dear,
Who at eventide surrounded
The easy elbow chair?
That group of happy faces,
In fancy still I see;
But ah! their vacant places
Alone remain for me.
Shall I e'er forget, &c.

Shall I e'er forget the valley
Or the ivy-mantled pile?
Where those much-loved forms now mouldering,
Within the sacred aisle?
Though fortune's choicest treasures
Be mine where'er I roam;
Can that recall the pleasures
Of my childhood's happy home?
Can I e'er forget, &c.

THE St. Louis millers are loudly protesting against the adoption of the samples of the standard grades of wheat recently accepted by the Board of Directors of the Merchants' Exchange. They claim that the grades are considerably lower than last year.

Grain and Flour Trade Notes.

COMPARATIVE shipments of flour and grain (crop movement) at the seaboard ports from September 1 to July 30, inclusive, for two years:

	1880-81.	1879-80.
Flour, bbls	12,525,884	9,785,559
Wheat, bus	103,215,036	122,522,900
Corn, bus	103,997,780	130,260,120
Oats, bus	24,591,410	21,209,241
Barley, bus	7,351,149	6,151,147
Rye, bus	2,477,053	3,029,940
Total, bus	241,532,428	273,273,048

THE crop of wheat in Dakota is the best ever grown there, and all the crops are excellent. The wheat harvest on the Jim river has begun. The crops there are No. 1.

HON. SCHUYLER COLFAX, who recently made the grand tour of the Northwest, has carried home a glowing opinion of this home of No. 1 hard wheat. In an interview at South Bend he said the finest wheat fields he had seen in his travels, East and West, this summer, he found in Dakota, Northern Minnesota and Manitoba. Some few of them will not yield as heavily per acre as last year; but the acreage of Dakota has been so increased that her six million crop of 1880 will undoubtedly be eclipsed by her eight million crop this year, all "hard No. 1;" while in many of the old States the wheat yield will fall off one-third to one-half. Driving from Fargo to the new village of Colfax, he passed through miles and miles and miles of wheat fields and oat fields, and miles more of new ground plowed up to be seeded next year. Immigration is filling up the Red river valley, which seems as fertile as the Nile, with great rapidity.—*Minneapolis Tribune.*

THE wheat crop of Minnesota for 1881 is estimated at 40,856,685 bushels.

MESSRS. GIBSON & CLARK, Glasgow, Scotland, in their circular of August 10th, says: "Imports from abroad have been liberal of sack flour and maize, but small of other articles, while coast wise and per railway arrivals continues limited. Wheat met an active sale at an advance of 6d to 9d per 240 pounds. Flour 1 shilling dearer per sack and barrel. Maize advanced 9d to 1s per 280 pounds. Oatmeal steady."

THE export of fine Hungarian flour from Hungary to Southwestern Germany has been rendered unprofitable by the further increase in the import duty, and besides this the German millers are making great efforts to improve their quality of flour and yield so as to enable them to be independent of imports. American high and low grade flours, however, are being imported more extensively than heretofore.

THE Inter-National Grain and Seed Market will be held at Vienna, August 30th and 31st. Estimates of the world's harvest will be read at that meeting.

ST. LOUIS speculators have been investing heavily in rye in the Chicago market and a corner is anticipated.

The Perfect Feed Box.

The Case Manufacturing Co., of Columbus, Ohio, are meeting with a great demand for their Perfect Feed Box for middlings purifiers. It fits any purifier and distributes the middlings perfectly over the entire width of the cloth. Following are a couple of letters which are samples of hundreds received by the company:

WINCHESTER, Ind., Aug. 16, '81.
Case Manufacturing Co., Columbus, O.

DEAR SIRS—Send us 5 more of your Feed Boxes for our Garden City Purifiers. Send as soon as possible. We now know what they are and must have them. Will remit on receipt. Yours truly,
BATES BROS. & CO.

PORT HURON, Mich., Aug. 18, '81.
Case Manufacturing Co., Columbus, O.

DEAR SIRS—We want 8 of your Feed Boxes. Please ship as early as possible and give us benefit of lowest discount.
Yours truly, McMORAN & CO.

THE BUDAPEST (HUNGARY) FLOUR MILL INDUSTRY.—The eleven great flouring mills in Budapest, Hungary, have a total capacity for grinding 22,800,000 bushels per year. The total amount of wheat ground during the past year was 12,920,000 bushels, or 2,240,000 bushels less than in the same period in 1879. Large additions and extensive improvements have been made in most of the Budapest mills within the last year. The largest of these mills has an annual capacity for grinding 2,184,000 bushels and the smallest 400,000 bushels. All the mills are driven by steam-power and only one of them has the railroad track at their doors. The mills employ a multitude of workmen, whose wages would be considered insignificant in this country.

Items of Interest.

HARD PUTTY.—The *Carriage Monthly* gives the following for a hard putty that will dry in one day: Take the whitening, mash all the lumps out on the stone, and mix it into a stiff paste by adding equal parts of japan and rubbing varnish; then add as much keg-lead as you think will make it work free with the knife; then add the rest of the whitening until you have it to suit you. This will sand-paper good with one day's drying. If you want putty that will dry quicker, take dry white lead and mix with equal parts of japan and varnish, to which add a few drops of turpentine. This is very soft for puttying but can be sand-papered in from two to three hours, it becoming perfectly hard in that time.

CONVENIENT FACTS.—The following numbers are worth remembering, as they will save a great deal of calculation, and give approximately accurate results with minimum labor: A cord of stone, 3 bushels of lime and a cubic yard of sand will lay 100 cubic feet of wall. Five courses of brick will lay 1 foot in height, on a chimney. Nine bricks in a course will make a flue 8 inches wide and 20 inches long, and eight bricks in a course will make a flue 8 inches wide and 16 inches long. Eight bushels of good lime, 16 bushels of sand and one bushel of hair will make enough mortar to plaster 100 square yards. One-fifth more siding and flooring is needed than the number of square feet of surface to be covered, because of the lap in the siding and matching of the floor. One thousand laths will cover 70 yards of surface, and 11 pounds of lath nails will nail them on. One thousand shingles laid 4 inches to the weather will cover 100 square feet of surface, and 5 pounds of shingle nails will fasten them on

IMPORTANCE OF COTTONSEED MEAL.—At the Cottonseed Crushers' Convention held recently in Cincinnati, O., some important facts were elicited with regard to the use of the meal product as a fertilizer and as food for stock. According to the *Commercial Bulletin's* report Mr. Hamilton, of Shreveport, La., said that he found cottonseed meal scarcely inferior to guano as a fertilizer and invaluable as food for cattle. In exchanging meal for seed one ton of the former was given for two and a quarter tons of the latter. Another member had demonstrated, by actual experiment on a farm in Connecticut, that the meal is the best fertilizer ever used on tobacco lands, tripling their productive capacity in three years, and is superior to any other cattle food. Again, Mr. Barber, of Selma, claimed to have largely increased by the use of cottonseed meal the production of cotton on poor lands. In fact there was unanimous testimony to the value of the cotton meal and cake not only for feeding cattle but as a fertilizer. In the quality of a feed stuff it is being used in Great Britain, Sweden, Norway and to some extent in Russia.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to Nordyke & Marmon Co., Indianapolis, Ind.

[Mention this paper when you write us.]